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THE NEWSPAPER OF THE INDUSTRY

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INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By GEORGE F. TAUBENECK

Stories of the Week
Gags of the Week
Real Progress Exhibited In Philadelphia
Badge of Distinction
Thanks, Mr. Groscost
Memo from Geo. Hanning

Stories of the Week

Philadelphia hotel bellboy told us last week why rich men usually hand out smaller tips than the not-so-well-to-do.

"Rich man don't want nobody to know he's rich. Poor man don't want nobody to know he's poor."

For the third time Mr. Prospect abused the salesman profanely, and warned him to get out and stay out.

"Wish I had a hundred prospects like you," parted the salesman.

"What? The way I treat you . . . you want a hundred more like me?"

"Yep. I got a thousand of 'em."

Gags of the Week

Mamie's bangs trended a new feminine hairdo fashion. And Ike's head is in style, too.

Definition of a Conference:

A meeting at which people talk about what they should be doing.

Definition of a Girl:

A female of any age who reaches for a chair while she answers or starts a telephone call.

Real Progress Exhibited In Philadelphia

Being a dyed-in-the-wool loyal refrigeration man, "Dope" has taken a dim view of the Johnny-Come-Latelies who've suddenly invaded the air conditioning business.

In editorial after editorial—published during 1953 and 1954—we warned that too many manufacturers were pushing too many room coolers into the hands of too many dealers.

Those dolorous prophecies were unheeded. Result: almost 40% of the window units produced last year weren't sold, and hang over the 1955 market like a smog.

Managers of corporations which have entered the year-round home air conditioning business also are vulnerable. Too many may have jumped into it too soon.

There is a major difference, however.

They aren't trying to conquer the market overnight. They are proceeding slowly and in orderly fashion, to train their dealers—a few at a time. This business probably won't go haywire.

At the recent Philadelphia exposition many newcomers, and plenty of industry veterans, exhibited a wide variety of new products. Air-cooled condensing units were prominent, for instance; also reverse-cycle "heat pumps." And many refinements. The "stuff" looked good. If installed properly it will give plenty of satisfaction.

All in all, the "Philadelphia Show" gave us the impression that air conditioning—in all its myriad manifestations—is progressing excitingly.

Badge of Distinction

Couple of years ago, with tongue slightly in check, we published an AIR CONDITIONING & REFGIRERATION NEWS editorial which suggested that a protruding window-type air conditioner might be a

(Concluded on Page 8, Col. 1)

Health Is Key to Bigger Sales of Air Conditioning

PHILADELPHIA—The air conditioning industry is missing the boat by not emphasizing its health aspects in promotion and advertising rather than selling on comfort alone, C. E. Buchholzer, president of Airtemp Div., Chrysler Corp., declared at a press conference on the eve of the 17th International Heating & Ventilating Exposition.

"It's nice to be comfortable," Buchholzer conceded, "but the thing that is going to make this industry big is health—air conditioning for health. People are more concerned about their health than their comfort.

"In the over-all picture, we've got a long way to go to sell the public on air conditioning. We have information on the healthful benefits of air conditioning—we've had it ever since the army air conditioned hospitals during World War II. They told us of the great reduction of post-operative complications with air conditioning.

"We have the information. I say, Why don't we use it?

"If we get away from promoting

(Concluded on Back Page, Col. 3)

ASHAE Meeting Touches on Many Topics

PHILADELPHIA—Many topics were touched upon in four technical sessions when the American Society of Heating and Air-Conditioning Engineers held its 61st annual meeting here Jan. 24 to 27.

In addition, a varied program of social events was staged.

Details of many of the technical papers presented at the ASHAE meeting will appear in future issues of AIR CONDITIONING & REFRIGERATION NEWS.

The meeting ran concurrently with the 12th International Heating and Air Conditioning Exposition.

New officers for the coming year

(Concluded on Page 33, Col. 3)

Probe of Radio, TV Promotions Turns Up $Million Racket

BROOKLYN — Following an eight-month-long probe by the office of Brooklyn District Attorney Edward S. Silver, the rackets grand jury here is investigating television and radio promotions of various household goods including food freezers.

Silver charged that some of the promotions, which also involve such items as vacuum cleaners and sewing machines, are million-dollar-a-year rackets.

In charging the grand jury, County Judge Samuel S. Leibowitz issued a sharp warning to operators of television and radio stations. He said operators who fail to ban false advertising after being informed of violations will be liable to prosecution.

Representatives of 23 radio and television stations were invited to

(Concluded on Page 33, Col. 5)

York Hermetic System Can Be Remotely Installed

YORK, Pa.—Claimed to provide the greatest flexibility for installation yet offered in such a system, York Corp. has introduced a new remotely installed, air-cooled, sealed-circuit residential air conditioner.

The new system, shown for the first time at the Heating & Ventilating Exposition in Philadelphia, is said by York officials to be "revolutionary" because it is a two-part hermetic system of such flexibility that the compressor and air-cooled condenser can be located completely outside the conditioned space, or outside the machinery room, with the cooling coil or evaporator installed as part of the furnace, or in the sheet metal ductwork leading to the furnace or the fan section.

"The advantages of being able

(Concluded on Back Page, Col. 1)

Atlanta Conference To Be March 17-19; Announce Program

WASHINGTON, D. C.—Program for the Educational Conference of the air conditioning and refrigeration industry in Atlanta March 17-19 was announced recently.

A big turnout of air conditioning and refrigeration service engineers, wholesalers, contractors, dealers, and manufacturers is expected. Theme of the meeting will be "Expanding Markets and Increased Sales."

Over 70 manufacturers will furnish educational exhibits which will be on display in the Exhibition Hall of the Atlanta Biltmore hotel where the Conference will be held.

The Air-Conditioning & Refrigeration Institute will furnish speakers on the first two days of the conference dealing with expanding markets and increased sales.

The Refrigeration Service Engineers Society will furnish speakers on Friday and Saturday covering the field of installation and repair.

On Saturday morning, March 19, the Air-Conditioning & Refrigeration Wholesalers will conduct a meeting for its two southeastern districts—Region 4 and Region 12.

(Concluded on Page 4, Col. 4)

House Bill Would Help Curb Transshipping

WASHINGTON, D. C. — Rep. John B. Williams, Mississippi Democrat, has introduced a bill which pertains to manufacturers of automobiles but which could be expanded to enable all manufacturers to curb transshipping and discount selling.

Designated H. R. 2688, the bill would exempt auto makers from anti-trust prosecution for franchises which prohibit their dealers from selling cars to unauthorized persons for resale.

Similar legislation was introduced during the 83rd Congress. Although opposed by the Justice Department and the Federal Trade Commission, this legislation was approved by the house but died in a Senate Interstate Commerce subcommittee.

RCA Exhibits Working Model Of Electronic Refrigerator

NEW YORK CITY — Development of what is believed to be the first refrigerator to achieve practical storage and freezing temperatures entirely by electronic means was revealed last week by Brig. General David Sarnoff, chairman of the board of Radio Corp. of America.

The experimental refrigerator was one of four new electronic developments "of great promise for the future" which General Sarnoff described in addressing the American Institute of Electrical Engineers.

He announced that an electronic air conditioner, designed without any moving parts, motors or compressors—in fact, a noiseless machine as required in the home—is on the way and encouraging progress is being made in RCA Laboratories. However, neither the refrigerator nor air conditioner are to be commercially available in the very near future, it was pointed out.

In effect, he said, it is an all-electronic cooling system, and as evidence of progress he presented the film of a small electronic refrigerator—"the first result of research in this new field."

General Sarnoff noted that the principle upon which the refrigerator operates was discovered by the French physicist Jean Charles Peltier more than 120 years ago.

Peltier observed that passage of an electric current through the junction of two dissimilar materials produces a cooling or heating effect in the region of the junction, depending upon the direction of the current.

"This so-called 'Peltier effect' has long been a scientific curiosity chiefly because of the lack of ma-

(Concluded on Page 4, Col. 2)

'Great Year for Air Conditioning' Verdict of Show

Intense Interest Shown in New and Improved Units, And Lines of Accessories

PHILADELPHIA — The heavy attendance through all five days of the Heating & Ventilating Exposition, and the especially keen interest displayed in the exhibits of air conditioning equipment and components, would seem to bear out the predictions of those who feel that the air conditioning industry is certainly on its way to its biggest year.

In terms of products, the Exposition should have proved to anyone's satisfaction that air conditioning is no longer "the industry of the future," but that it now has the products to provide air conditioning for every phase of American living—including the home and the automobile.

Furthermore, the equipment now offered—as was amply demonstrated at the Exposition—is efficient, economical to operate, compact, and relatively easy to install. If a problem such as scarcity of water is encountered, the matter of using air-cooled units has been solved in many different ways, or there are a multitude of water-saving devices that can be employed.

Show Pictures

In this issue the News presents the first part of what it believes will be the most extensive picture coverage offered by any publication of the air conditioning exhibits at the recent Heating & Ventilating Exposition in Philadelphia.

An intensive effort was made to get photographs of everything that might have some interest for the readers of the News. Some that might have been included were omitted because they duplicated products shown at the Builders' Show, pictured in previous issues.

The pictures are on pages 14, 15, 17, 22, 23, 24, and 31. More will be published in a following issue.

The efforts to keep air conditioning systems as unobstrusive as possible and to make them blend with interior decorating schemes was also evident, and was very much reflected in displays of registers, diffusers, and grilles, and in the demonstration of functional panels and ceilings.

Noteworthy advances have also been made in air filtering devices in both the conventional and electrostatic types. Filter units were shown that also have application in special industrial work, including the control of radioactive air at atomic energy plants.

There was also considerable evidence in the exhibits that the "wet system" manufacturers have

(Concluded on Page 33, Col. 2)

DON'T MISS . . .

'Old Fashioned' Selling Methods 6
Dealers Told That Revival of Creative Selling May Be Answer To Discount House Competition

Closed 'Wet' Year-Round Air Conditioning 10
Basic Principles of Using Chilled and Hot Water

The Miami Story 19
How Refrigeration Contractor Helped Small Market Compete with Large Supermarket Chains

Electric Service Extension for Air Conditioning 20
Utility Discusses 3 Ways To Reduce Delays

Balancing Refrigeration Systems (4) 26
How To Select Proper Flow Control Devices

Air Conditioned Village Report 28
Preliminary Findings and Opinions of 21 Owners

Servicing Automatic Ice Makers 30
Clean Mechanism, Adequate Water, Sufficient Current Will Eliminate Most Problems

. . . In This Issue

'Today's Biggest Bargain'

Utility Promotes Air Conditioning, Appliances with Operating Cost Figures

HOUSTON, Texas—To help sell more refrigerators and air conditioners, as well as other appliances, Houston Lighting & Power Co. has sent out information to its customers concerning operating costs.

A pamphlet enclosed with electric bills is headed, on one page, "Electric Service Is Today's Biggest Bargain."

The page then listed the average cost per month of operating refrigerators, air conditioners, and other appliances at rates charged by Houston Lighting & Power.

Average cost per month for refrigerators was figured at 70 cents.

For room air conditioners, the list reminded that the cost only occurs during the seasons of use; at Houston rates it averages 1.2 cents per hour for ⅓-ton units, 1.4 cents per hour for ½-ton units, 2.1 cents per hour for ¾-ton units, and 2½ cents per hour for 1-ton units, the company figures.

Dow Reduces Prices on 'Styrofoam' Insulation

MIDLAND, Mich.—An "appreciable" price reduction on "Styrofoam" (Dow expanded polystyrene) effective Feb. 1 has been announced by Donald L. Gibb, sales manager of the plastics department, The Dow Chemical Co.

The price reduction is possible, Gibb stated, because of increased production resulting from greater demand for the product. In addition to enlarged facilities here, a new Styrofoam plant at Allyn's Point, Conn., will soon start producing the lightweight plastic foam.

Styrofoam is finding ever-increasing use in many markets, including low temperature insulation, the company said.

Stockholders To Vote on Merger of U. S. Radiator, National Radiator Co.

NEW YORK CITY — The proposed merger of National Radiator Co. and United States Radiator Co. will be submitted for approval to U. S. Radiator stockholders in Buffalo on Feb. 25 and to National stockholders in Baltimore on Feb. 28, it was reported here recently.

If the merger is approved, the new company will be known as the National-U. S. Radiator Corp.

York Distributors Names N. D. Sellman Commercial, Residential Dept. Mgr.

LONG ISLAND CITY, N. Y.—Nils D. Sellman, formerly eastern regional manager for the Air Conditioning Div. of Servel, Inc., has been named commercial and residential department manager of the Wholesale Div. of York Distributors, Inc.

N. D. Sellman

In making the announcement, L. D. Wasson, president of York Distributors, said the appointment marks the expansion of the company's activities in the commercial and residential air conditioning market through qualified franchised dealers.

He said Sellman will set up a sales department and expand the dealer organization for the Wholesale Div.

The supporting program will consist of local advertising and sales promotion campaigns as well as the establishment of sales, engineering, and service training school for dealer personnel.

The sales territory covers the five boroughs of New York City as well as Nassau, Suffolk, Westchester, and Putnam counties.

Ordinance Prohibits Dumping Cooling Water In Sewers

PONCA CITY, Okla. — A city ordinance prohibiting the discharge from cooling units of more than 10 g.p.m. of water into sanitary sewers or subterranean storm sewers became effective Jan. 1.

The ordinance, No. 2800, was passed last May. It also prohibits the discharge of waste water from evaporative coolers directly into streets, alleys, or public ways. They must be connected to drain pipes.

Violators will be subject to a fine of $20 for each day of violation.

City officials noted that even several small air conditioners that use more than 10 g.p.m. of water from the same meter are subject to the ordinance and require a water saving device.

Norge Appoints Ogden Merchandising Consultant

CHICAGO — Appointment of James B. Ogden as merchandising consultant of Norge, a subsidiary of the Borg-Warner Corp., was announced recently by Judson S. Sayre, president.

Ogden has been a major appliance executive with the J. L. Hudson Co., Detroit department store, since 1928, and engaged in appliance sales since 1918.

He retired on Jan. 29, 1955, as manager of the major appliance department of the large Detroit store.

In 1947 Ogden supervised the opening of a new J. L. Hudson major appliance department which offered completely planned custom kitchens as well as individual appliances.

He also directed plans for the store's new Northland Center major appliance department which opened last year.

Ogden started his appliance career as a salesman for Stroud-Michael Co., a major appliance specialty selling organization. In 1923 Ogden was hired by Western Electric Co. to manage an outside sales group for a Detroit department store. His first job at J. L. Hudson was buyer and department manager of the electrical department.

Automatic Canteen Gets Stockholders' Approval To Buy Control of Rowe

CHICAGO—A proposal to purchase a controlling interest in the Rowe Corp., manufacturer and operator of vending machines, was approved recently by stockholders of the Automatic Canteen Co. of America.

Under the proposal, Automatic Canteen would purchase 262,500 shares of Rowe common stock from Robert Z. Greene, Rowe president, and his associates for $15 per share.

This would give Automatic Canteen 52% of Rowe stock.

Carrier, AGE Stockholders Vote on Merger, Stock Increase

SYRACUSE, N. Y.—Shareholders of both Carrier Corp. and Affiliated Gas Equipment, Inc. will vote Feb. 23 on the proposed merger of the two companies.

Carrier stockholders will also vote on a proposal to increase the number of unissued preferred shares from 800,000 to 1,000,000.

Cloud Wampler, president of Carrier, said the two major operating divisions of Affiliated, Bryant Heater, and West Coast, would become divisions of Carrier Corp.

DISA Studies Amendments To 3-A Sanitary Standard

WASHINGTON, D. C. — Suggested amendments to the 3-A Sanitary Standard for Farm Holding and/or Cooling Tanks were studied at a recent meeting of a task committee of Dairy Industries Supply Association.

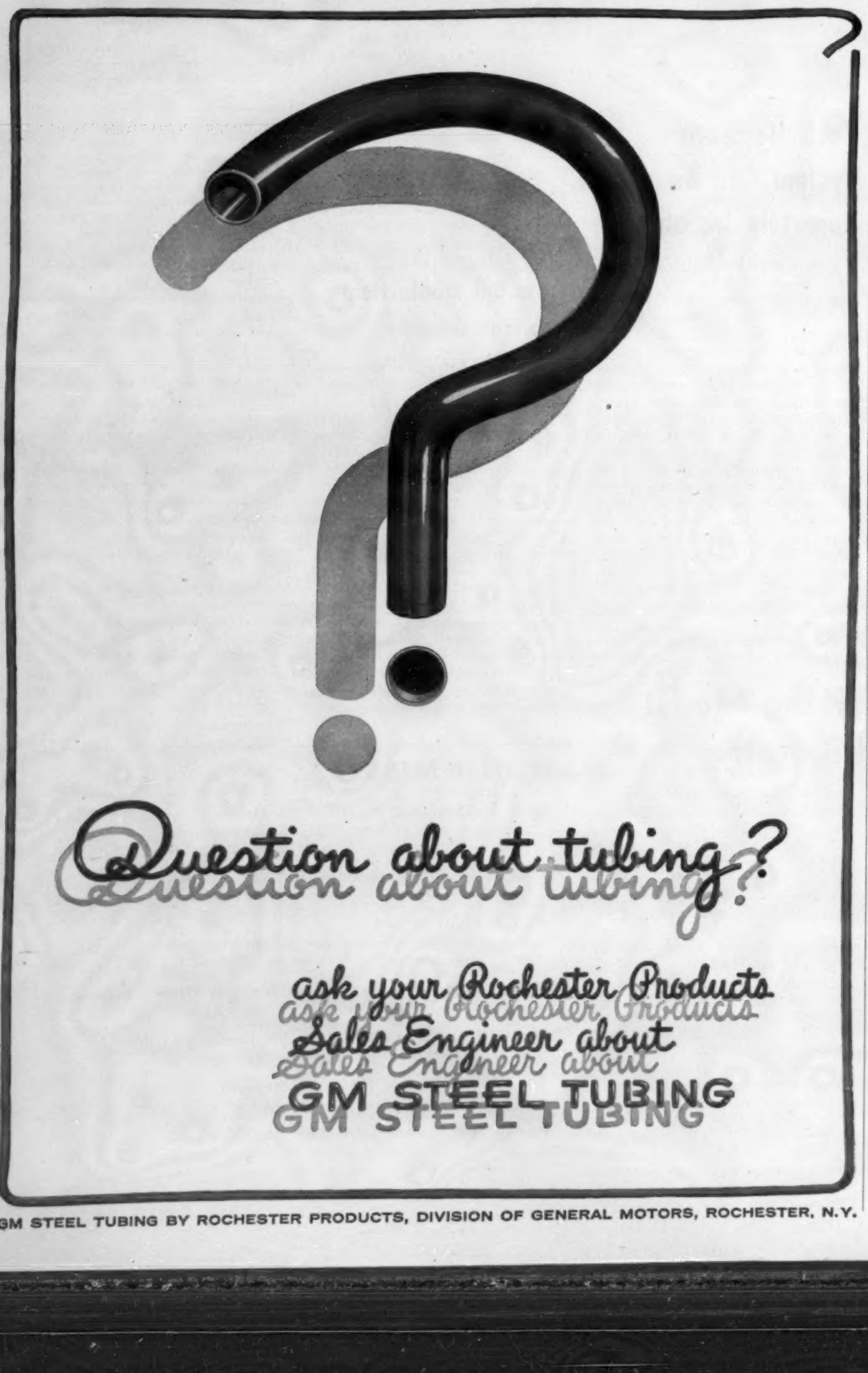
Existing 3-A Sanitary Standard for this type of tank was approved and published in July, 1953. Since that time changes have been proposed. The committee's views have been sent to representatives of United States Public Health Service, the Committee on Sanitary Procedure of International Association of Milk and Food Sanitarians, and the Sanitary Standards Subcommittee of Dairy Industry Committee.

Spokesmen for the organizations or agencies contacted will review the suggestions at a meeting of the 3-A Sanitary Standards Committee on April 26-28 at Kenwood, Md.

L. T. Gustafson, chairman of the DISA task committee, presided over the task committee meeting which was attended by some dozen other technical men of equipment firms.

Korsmeyer Branch Opened

LINCOLN, Neb. — The Korsmeyer Co., appliance distributor, has opened its first branch at Grand Island, Neb. Conrad Budde is branch manager.



GM STEEL TUBING BY ROCHESTER PRODUCTS, DIVISION OF GENERAL MOTORS, ROCHESTER, N.Y.

SOMETHING NEW... A BETTER COOLER...
BETTER CAPACITY... A BETTER PRICE...
THE LA CROSSE THRIF'AIRE!

La Crosse sweeps the field in economy, capacity and engineering with the Thrif'Aire and the **exclusive** "plug-in-panel" refrigeration unit. Panel is easily removed and adaptable to many different uses . . . a La Crosse **exclusive** that'll make you money! Advanced design makes a low price possible.

OTHER DEPENDABLE LA CROSSE PRODUCTS: WALK-INS . . . REACH-INS . . . KUBE KING . . . DIRECT DRAWS.

THRIF'AIRE DRY STORAGE BOTTLE COOLER FEATURES:

- Gray baked enamel finish on zincgrip paintgrip galvanized enamel.
- Available electric complete —42" and 62" lengths.
- Fingertip, stainless steel "slide away" doors.

WRITE TODAY - FOR COMPLETE INFORMATION.

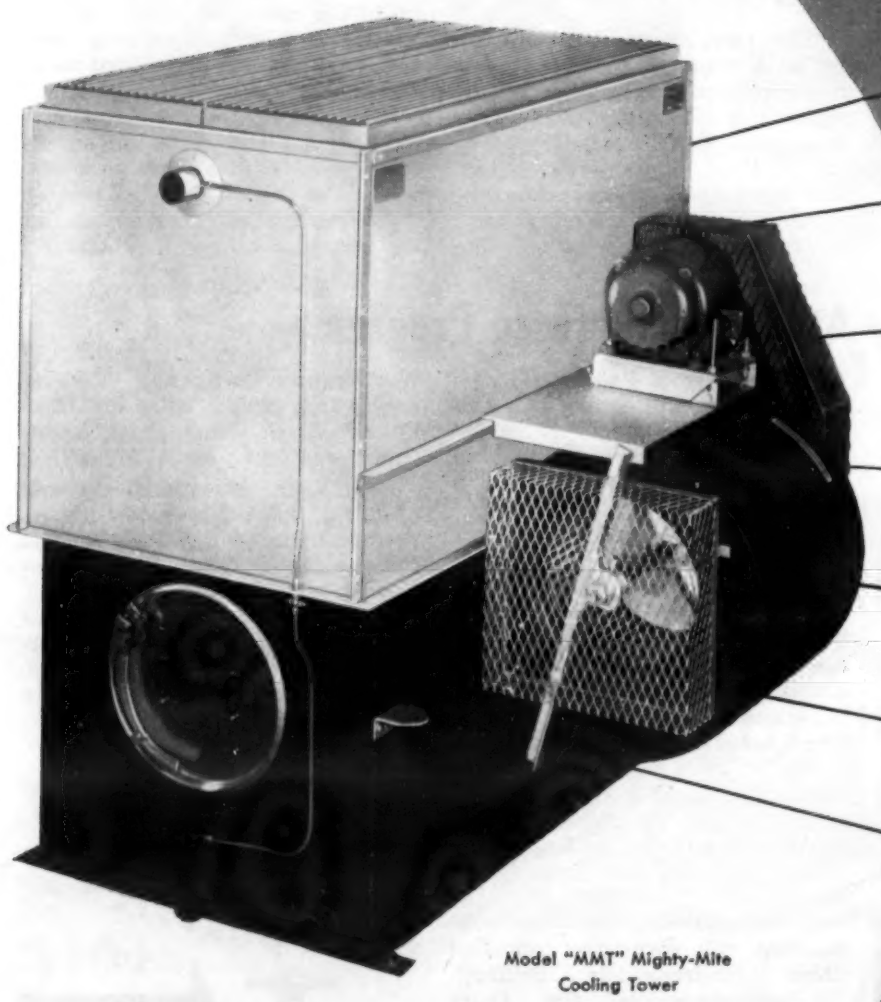
LA CROSSE COOLER COMPANY
Factory and Gen'l Offices: 3000 Losey Blvd., So., La Crosse, Wis.
Export Office: 80 Broad St., New York City. Cable Address: Eximport.

B.A.C.

Presenting.... an Outstanding New Line!

Mighty-Mite

EVAPORATIVE CONDENSERS and COOLING TOWERS



Model "MMT" Mighty-Mite Cooling Tower

MINIMUM SIZE-MAXIMUM PERFORMANCE!
Compact, modern design combines maximum capacity with minimum space requirements.

ACCESSIBLE!
The most accessible unit on the market. All moving parts exposed or within easy reach, cutting maintenance and servicing costs to a minimum.

DURABLE!
The heavy gauge metal panels are protected from corrosion by a superior new finish which, by actual tests and field observation, outlasts hot dipped galvanizing more than ten to one.

QUIET AS A WHISPER!
Arrangement of moving components results in quiet operation with minimum horsepower requirements.

VERSATILE!
Suitable for either outdoor or indoor installation. Evaporative Condensers are applicable to Freon or Ammonia.

NINE SIZES!
10 T.R. to 50 T.R. in five-ton increments.

LOWEST IN COST-HIGHEST IN QUALITY!
The result of over four years of research . . . this superior design offers a centrifugal fan type Evaporative Condenser and an all-metal Cooling Tower of the highest quality materials and workmanship at the lowest possible investment from the standpoint of initial cost, maintenance and long life.

B.A.C.

WRITE FOR DETAILS

BALTIMORE AIRCOIL COMPANY, INC.

2625 MATHEWS STREET • BALTIMORE 18, MARYLAND

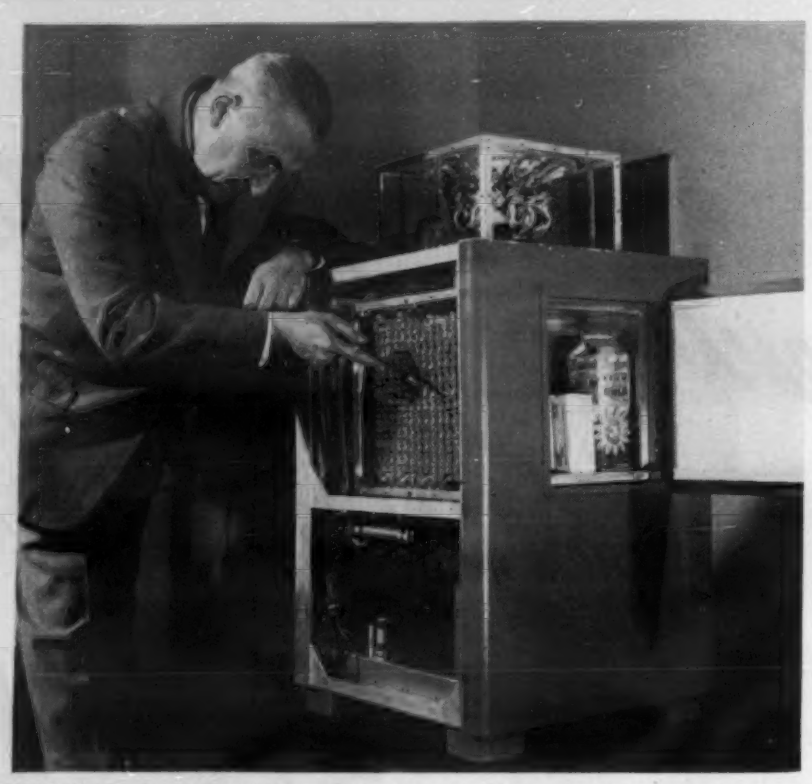
FOR REFRIGERATION AND AIR CONDITIONING EQUIPMENT...

SPECIFY

READING QUALITY COPPER TUBING

READING COPPER TUBE

READING TUBE CORPORATION
EMPIRE STATE BUILDING
NEW YORK 1, N. Y.
WORKS: READING, PA.



DEVELOPMENT of an all-electronic cooling system by RCA has led first to the experimental model pictured above of an electronic refrigerator. Nils E. Lindenblad of RCA Laboratories is shown here explaining the instrument believed to be first refrigerator to achieve practical storing and freezing temperatures entirely by electronic means.

RCA Electronic Cooling System--

(Concluded from Page 1, Col. 3)
terials capable of producing temperatures sufficiently low for practical use in cooling or refrigeration," said General Sarnoff.

"Unlike Peltier, Lord Kelvin, and others who studied this effect, the RCA scientists were able to approach the task with new knowledge provided by recent studies in solid-state physics.

"Their research in this field shed new light on the behavior of electronics and solid materials, and provided new information which has led to success in creating new materials.

"The discovery of Peltier has now been translated into practical application. Our continuing search for improved materials so far has revealed no evidence that a limit has been reached."

In a letter to General Sarnoff, Nils E. Lindenblad of RCA Laboratories said the electronic refrigerator "represents a research and engineering development of major importance to the future of refrigeration and air conditioning.

"The cooling system which we have demonstrated in the refrigerator," he explained, "produces sufficiently low temperatures to freeze an appreciable amount of water to ice and to provide cool storage for perishable foods as rapidly as many standard electric refrigerating systems.

"It accomplishes its freezing and cooling operations by tiny thermojunctions, which absorb and remove heat from the cooling compartments when electric current is applied.

"The heat transferred from one end to the other of these thermojunctions is carried away by a flow of water through the system. Since there are no moving parts, the apparatus operates in complete silence."

Lindenblad pointed out that an RCA research team has undertaken a thorough study of all known electronic techniques for producing lower temperatures.

"In spite of the disappointing results obtained by previous experiments elsewhere, the Peltier effect appeared to us to offer the most promising line for development. . . .

"Prior to the research program undertaken by RCA Laboratories, the best performance known to have been achieved with the Peltier effect was a lowering of temperature by 9° Centigrade (16.2° F.).

"The new alloys developed by the RCA research team and used in the refrigerator achieve a temperature drop several times greater. . . .

"All other known work in this field has been confined to the production of the Peltier effect on a minute scale through the use of a single or very few thermojunctions to create lower temperatures in a tiny area.

"There was, therefore, no precedent to guide the RCA team in assembling the thermojunctions in sufficient numbers to provide a convincing demonstration of Peltier cooling on a practical scale.

"The extent to which these problems have been overcome is shown in the developmental refrigerator, which employs a compact and effective arrangement of many thermojunctions, each carrying its own connections with the power supply and circulating water systems.

"Of these thermojunctions, the majority are used for the cooling compartment while the remaining

"Along with our development of ones serve the freezing unit.
new alloys and an effective assembly, we have more recently turned to the problem of removing heat most efficiently from the system.

"In the refrigerator, built to demonstrate the potential of Peltier cooling, we have used the expedient of tap water to carry away heat from the thermojunctions—an expedient which hints at the early practical application of this type of cooling to systems that normally employ circulating water, such as water coolers and drinking fountains.

"Encouraging progress is now being made, however, in development of a closed system which will permit construction of the type of self-contained unit required in standard room air conditioning.

"The work already done in development of the cooling system demonstrated in the refrigerator is basic to the attainment of our objective—the perfection of an all-electronic air conditioning system."

Lindenblad noted that at present a mechanical pump is used to circulate the water for disposing of heat. However, a method of pumping water electronically is being developed, he said.

He also told newspaper reporters: "We could put these thermoelectric couplers in drawers now and make vegetable bins and meat drawers out of them.

"The kitchen of tomorrow will look much better with built-in refrigeration. However, we are not yet at the stage where the cost of the operation is cheaper than in the current mechanical system.

Atlanta Conference Program--

(Concluded from Page 1, Col. 4)
This program will consist of a full morning of talks.

Exhibits will be open on all three afternoons from 1 to 6 o'clock.

Willie Mae Rogers, director of Good Housekeeping Institute, speaking on the subject, "More Miracles, Please," will outline what, in her opinion, the American housewife needs to know about air conditioning.

Jack Aldridge, building specialist of *Life* magazine, will speak on "Your Stake in the Home-Building Industry." C. M. Wallace, vice president in charge of sales, Georgia Power Co., will speak on "The Expanding Air Conditioning Market as a Utility Sees It."

Other speakers not yet announced will cover the topics of "New Horizons in Selling"; "Modernization in the Dairy Field"; and "Expanding Markets in the Frozen Food Industry" with Geo. S. Jones, Jr., managing director of the ARI, as moderator.

RSES will present a program which will include a demonstration of simplified installation of automobile air conditioning and a talk by James Black of Philco Corp. explaining the silver-solder method in which a motor-compressor exchange will be made in front of the audience.

Other talks include: "How Dry is Dry Enough?" John D. Bopp, chief chemist, Refrigeration Div., Ansul Chemical Co.; "Servicing Oil Burners," Otto J. Ress, chief engineer, Mueller Climatrol Div., Worthington Corp.; and "Cooling or Heating Water with the Heat Pump," K. C. Cunningham, application engineer, Acme Industries.

Paul Reed, educational director of RSES, will act as moderator at the meetings of RSES as well as for the "Information Please" sessions.

Hotel reservations should be made as early as possible by writing to Atlanta Convention Bureau, Rhodes-Haverty building, Atlanta 3, Ga., it was stressed.

way ahead of its time... this

AUTOMATIC money MAKER

DOUBLE-DUTY
Crystal Tips or Chips
MODEL B-200

AUTOMATIC ICE MAKER

The all new Crystal Tips B-200 ice maker's 2-in-1 feature puts it "ahead of its time" and the field. See it and you'll agree that it makes all other ice makers obsolete.

The Crystal Tips 2-in-1 feature provides both cubed and chipped size ice without grids or extra crushing mechanisms. One B-200 gives you two ice makers for the price of one. No need for accessories that add to your cost.

In 24 hours the B-200 produces over 3,700 large, individually frozen, uniformly sized, easy handling circular pieces of ice. The bin stores a full day's production.

Installation is simple, needs only ¼" supply, nominal drain, and 115 volt current. It is a good money maker for any dealer.

IT IS A REAL MONEY MAKER!

Every quantity user of ice is a prospect for this versatile 2-in-1 unit. The prospect's own figures on present costs of ice show him how the Crystal Tips or Chips Ice Maker pays for itself. Literature and mailing pieces supplementing the national advertising are available for your direct mail use. Write for further information.

AMERICAN AUTOMATIC ICE MACHINE CO.
1781 Fourth Street N.W. Faribault, Minn.
A Subsidiary of McQuay, Inc., Manufacturers of Heat Transfer Equipment Since 1923

Filtrine
"Taste-Master" PURIFIERS for

WATER - COOLERS ICE MAKERS

... rust, dirt chlorine taste

Stop ...

... service breakdowns due to rust & sludge

Insures service satisfaction for all coolers, ice-makers! Clear, taste-free water ... crystal ice ... every day ... in all locations.

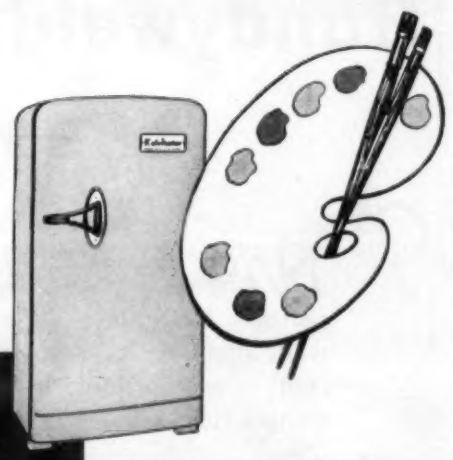
FILTRINE MFG. COMPANY
53 LEXINGTON AVE • B'KLYN 38, N. Y.

A Sight to Delight a Salesman!

New 1955 Kelvinators

2 "Hit" Models from a Great New Line—with more of the stuff sales are made of!

- 12 cubic feet food storage.
- 100 lb. capacity true home freezer with zero-cold, fast freezing shelf, roll-out basket, trays for juices and three 18-cube ice trays.
- Automatic Defrosting of fresh food compartment. Humidiplate refreshes as it refrigerates. Dial selection of *temperature and moisture*.
- Roll-Out Shelf—slide-out Handitray—Twin Porcelain "Moisture-Seal" Crispers.
- Butter and Cheese Chests and 5 shelves in door.



12 cubic feet food storage.

80 lb. capacity frozen food chest with Kelvinator's exclusive wrapped-in-cold design: all 5 freezer walls refrigerated.

"Magic Cycle*" Automatic Defrosting . . . Kelvinator's great exclusive! No heating coils. Absolutely no thawing during defrosting. Temperatures *stay* far below freezing, *always*.

- Roll-Out Dairy Shelf. Handy Half-Shelf. All shelves aluminum with gleaming gold fronts. Twin "Moisture-Seal" Crispers.
- Butter and Cheese Chests and 5 shelves in door.

*Patent applied for.

. . . all this and **8 new colors** *without added inventory cost for color!*

- Yes, *every way* Kelvinator puts Kelvinator dealers and their salesmen out in front with all-new refrigerators for 1955, a brilliantly designed and *sales-inspired* line. Every model has new beauty, larger capacity, greater convenience, more frozen food storage. In addition to features that are easy to demonstrate and superiorities easy for your salesmen to sell, Kelvinator brings you a full range of 8 new decorator colors that sell themselves. And in Kelvinator you show and sell color *without* extra inventory investment!

Kelvinator

Division of American Motors Corporation, Detroit 32, Michigan

THE MOST VALUABLE FRANCHISE IN THE APPLIANCE INDUSTRY

Solution To Today's Highly Competitive Market Conditions May Be Found In Using 'Old Fashioned' Selling Methods

CHICAGO—A year of improved sales opportunity lies ahead for appliance retailers who will place their emphasis on sound creative selling, D. A. Packard, Kelvinator general sales manager, told the National Appliance & Radio-TV Dealers Association at its recent annual convention here.

Delivering the keynote address on "Trends In the Appliance Industry in 1955," Packard said much of the lost volume in major electric appliance sales in the early part of 1954 was picked up in the latter part of the year and statistics indicate "we will wind up 1954 with only about 40,000 less appliance sales than were made in 1953."

Inventory Situation Described as Healthy

Another favorable factor, he stated, is that the industry inventory situation "is in a very healthy condition. Certainly there is every indication that there will be less prior-year merchandise to be moved in '55 than any year since 1951."

Turning to the outlook for 1955, Packard said it is expected that over-all business will exceed 1954 by from 5 to 10%.

In addition, he took note of two factors which directly affect the appliance industry—the rate of new family formation and the current boom in new home construction.

He said 1954 represented the low point in recent years in new family formation but that the turn upward should begin in 1955, "with each year showing greater increases from here on." Changes in the Federal Housing Act of 1954 have encouraged a continuing home building boom, he stated.

Add to these factors the things manufacturers have done to obsolete previous product models, and the appliance industry can lead the general business upswing this year, Packard declared.

Production Capacity Still Exceeds Present Market

He pointed out, however, that the capacity to produce major electric appliances of all types still exceeds the size of the present market.

"As long as this condition exists, and in my opinion it may be with us for two or three more years, appliance merchandising can be expected to continue to be intensely competitive," he said.

Turning to the discount-house problem, Packard said his company has studied this trend "literally inch by inch in the hopes that we could find a practical solution to the problems this type of selling has brought to conventional retailers."

However, he told the dealers, as of now "I can only honestly say to you that in spite of the time and attention we have given to this subject, will still do not see what the lasting effects of this trend will be on the over-all retailing structure in our industry."

But, Packard said, "there is one important historical lesson regarding this situation which I want to leave with you."

He recalled the time in the early 1930's when the department and furniture stores entered the retail appliance field, bringing into the industry a new and more liberal term structure.

"They initiated the selling of refrigerators on the meter plan, for nothing down and only 15 cents a day," he said. "I well recall the predictions made at that time—that since these terms were not available to the appliance-type retailer, he would soon lose his position in our industry. But it is now a matter of history that that did not happen.

"While these merchandising accounts brought new competitive terms into the business, at the same time they brought with them a tremendous volume of retail advertising. Public acceptance for appliances increased rapidly and, as a result, there was more business for all. Appliance dealers gained in strength.

"A few years later the mail order segment of our business became unusually aggressive and offered appliances at $40 to $60 under existing price structures. Once again dire predictions were made about the end of the appliance retailer, but, once again, appliance retailers emerged from these competitive conditions stronger and with a larger per cent of industry volume than they had had before.

Dealer Needs To Work with Mfr. and Distributor

"Just as the appliance retailer met the challenge of these two revolutions in merchandising methods in our industry in the past, so, too, do we expect that he will meet the challenge of today. By working closely with those manufacturers and distributors who believe in and practice sound business methods, he can continue to get an ever increasing share of the total appliance sales available."

Continuing, Packard cited several of Kelvinator's 1954 sales campaigns and their results to prove his contention that retailers who apply creative selling methods can successfully compete under today's conditions.

He said Kelvinator "started right out the first of the year trying to get the retailers we were working with to see the opportunity they had if they would get busy and talk to *people* rather than continue to wait for *customers*. . . .

Creative Selling Results In Plus Sales

"Our results and the results of the retailers who worked with us are now a matter of record. This type of creative selling worked; and thousands of plus sales were made by retailers using it with us in 1954. . . .

"Since too few of you had or could get salesmen to go out and look for new prospects outside of your stores, we developed a series of campaigns designed to bring people—not customers, mind you, but people—to your stores. We then developed . . . materials to use within your stores, to help you in classifying people and finding out which were potential customers."

"Let me give you just two or three examples of the kind of selling I am talking about," Packard said.

"In the early part of the year, we started out with one of the oldest gimmicks for bringing people into the store that I know of. We called it the Lucky Key Campaign.

"It is built around distributing keys, and getting people to come to your store and try them in locks, in hopes of winning a prize. Some retailers used this with little or no sales results, and it was easy to see why it did not work for them.

Key To 'Key Promotion' Is Dealer Effort

"I was standing in a store one morning when a customer came in with a key in her hand. The owner of the store was busy rearranging some stock at the back, and without leaving, called to her: 'Do you have a key to try?'

"She said, 'Yes.'

"The retailer said, 'There's the lock right over there.'

"She tried the key. It didn't work. As she was leaving the store, he called again, 'Didn't work?'

"She said, 'No.'

"He called back as the door closed: 'Sorry, better luck next time.'

"Let me compare this with the experiences of many retailers who produced a lot of added business from this simple activity. Most successful was the dealer or salesman who offered to help the customer try the key. When it didn't work in the lock for the main prize, he told her she still had an opportunity to win a consolation prize.

"He invited her to register, leaving her name and address and stating the appliance she was interested in owning, and then try a second lock. After registering, her key of course opened the second lock, and she received a minor merchandise prize for her trouble.

"The retailer by this time knew the lady's chief interest, and had established a favorable atmosphere by being courteous and helpful. In case after case appliance sales were made in hours or days as a direct result of this activity.

"Let me give you another example of creative selling in the store, and how it works. Later in the spring, we ran a national contest with a $25,000 home as first prize. We encouraged *people*, not customers, to go to our dealer's store for an entry blank.

"Once again, results were directly in relation to the way dealers handled people coming in for entry blanks.

"I am sorry to say that in some stores entry blanks were placed on a table at the front of the store. When a customer came in and asked for one, the salesman pointed 'Right over there,' and that was the end of that opportunity.

"Let me again review for you how other salesmen or retailers turned these opportunities into sales. When the prospect came in she was asked first to register. The salesman at the same time asked her which appliance she would like to win, in case she didn't win the house.

"After getting her reply, the salesman then offered to be helpful by telling her all about the appliance she was interested in, so she could write a better entry. Thousands of sales were produced by this type of creative selling.

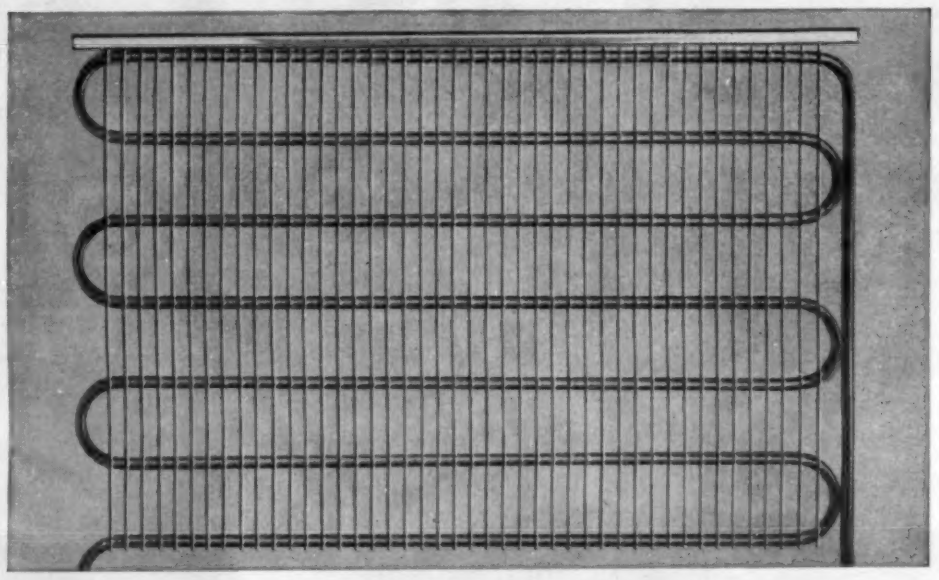
"Here's an interesting example of what I mean. A dealer in a midwestern city was pretty disgusted with selling conditions in his market, and in a conversation with one of our distributors, indicated that if things didn't get better pretty quick he was thinking of quitting the appliance business.

Dealer Must Create Business

"The distributor asked him what he was doing to create business, and received the answer too often made to this question—literally nothing. So the distributor asked him to try it Kelvinator's way a few weeks before giving up.

"He proceeded to explain to the dealer the opportunities in the

(Continued on next page)



Bundy will fabricate serpentine coils for you, speed them to you as specified, on time – bright and clean, smooth inside and out, ready for plating and other finishing operations. If you do your own fabricating, we'll ship you straight lengths or long coils up to 4000 feet.

Bundyweld brings you proved dependability

NATURALLY, you want the cold shelves in your upright freezers to perform faithfully – *all* the time. You want them to maintain a steady, *even* cold; to be absolutely leakproof, entirely trouble-free.

That's why you can't go wrong with cold shelves of *performance-proved* Bundyweld Tubing, *the safety standard of the refrigeration industry for over 20 years.*

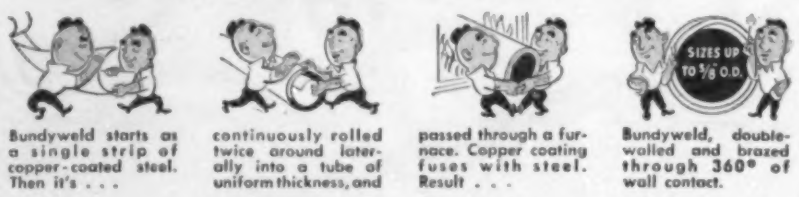
Freezer and refrigerator manufacturers have known for years that they could *depend* on Bundyweld for compressors, evaporators, condensers, refrigerant lines, other vital tubing parts: Here's why:

Bundyweld is leakproof by test: thinner-walled yet stronger; has high thermal conductivity; takes easily to standard protective coatings; takes any tubing-fabrication operation in the book.

In addition, skilled Bundy engineers stand ready to help you with troublesome tubing problems; specialize in showing Bundy customers ways to save time, material, money. Call, write, or wire for data or for help with your problem.

BUNDY TUBING COMPANY
DETROIT 14, MICHIGAN

WHY BUNDYWELD IS BETTER TUBING

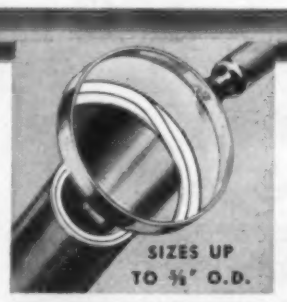


Bundyweld starts as a single strip of copper-coated steel. Then it's . . .

continuously rolled twice around laterally into a tube of uniform thickness, and

passed through a furnace. Copper coating fuses with steel. Result . . .

Bundyweld, double-walled and brazed through 360° of wall contact.



← NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead and less chance for any leakage.

"A CASE OF COOL JUDGMENT"

FLO-COLD DRINKMASTER
STAINLESS STEEL CUBER — COOLER.
SOLD THRU DEALERS ONLY.
WRITE
United Friguator Engrs.
MENOMINEE, MICH.
AVAILABLE IN SIZES 4 TO 10 FT.

(Continued from preceding page)
Homemaker's Holiday Contest, and offered detailed information on how to find customers by talking to people. The story from here on goes like this:

"The dealer was alone in his store about nine o'clock on a Saturday night. A lady and her husband came in as a result of a card in his window, and asked for an entry blank.

"Since he was alone, had nothing else to do, and thought maybe here was an opportunity to find out for himself that this kind of selling didn't work, he decided to give the customers the full treatment.

"He explained the contest, found out which appliance the lady would like to win, offered his assistance in writing a better entry, and gave her a complete demonstration on her choice of appliance—which happened to be an upright freezer.

Desire Can Be Created

"Much to his surprise he found interest, he created a desire, and got action. Then he showed the refrigerator that matched the freezer in size and looks, and his prospect wound up using her old refrigerator as the down payment on both the freezer and a brand new refrigerator.

"This isn't the end of the story. At 11 o'clock that Saturday night, he called our distributor at his home, got him out of bed and said: 'I just had to call you up and tell you that your fool plan worked. I just sold an 18-ft. freezer and matching refrigerator at full list price, and it is the first full list sale I've made in months.'

"Later in the year, we provided retailers with a little insulated shopping bag that they could advertise as a $3.95 value and sell for 99 cents to bring people into their stores.

Bag Could Serve as Opening For Sales Pitch

"Here, again, some retailers merely sold a lot of bags; but also, here again, many of the retailer salesmen who had tried these creative selling techniques took time to ask the bag purchasers how they were going to use them.

"If the lady answered that she was going to use it to bring frozen food home from the store, the salesman was immediately in there with a pitch for a larger refrigerator or home freezer. If she talked about cooking for picnics, he had an ideal opportunity to talk to her about a new range.

"If, in many cases, she was going to use it while visiting as a resting place for baby's diapers, he had an immediate opportunity to find out how she was going to launder them once she got home. This worked, and, again, thousands of created sales were produced by this type of creative selling."

SPECIALTY SELLING METHODS

Temperature Equipment Corp. Wins Award For Its Direct Mail Advertising Again

CHICAGO—Temperature Equipment Corp., distributor in the Chicago area for Carrier Corp., was one of 65 winners in the 1954 Direct Mail Advertising Association, Inc. "Best of Industry" Competition announced by H. J. Prebensen, president.

The Best of Industry Award of Merit was the only citation made in the air conditioning field, Prebensen stated. It was the second award received by Temperature Equipment in as many years.

"Our winning campaign entered in the 26th annual DMAA contest centered around one product—Carrier self-contained 'Weathermakers,'" the Carrier distributor stated. The entire campaign was handled by Sidney Clayton & Associates of Chicago, under the direction of Prebensen.

A mail list consisting of approximately 1,500 names was prepared for each of seven dealers serviced by Temperature Equipment within a 50-mile radius of Chicago. Compiled from telephone directories, special directories, and mailing house lists, they represented 22 different types of retail stores located in the vicinity of each dealer.

AIR CONDITIONING industry award winner in the 26th Annual Direct Mail Advertising Association's 1954 competition was Temperature Equipment Corp. of Chicago, Carrier distributor for the Chicago area. The campaign promoting Carrier self-contained "Weathermakers" was conducted by Sidney Clayton & Associates, also of Chicago. H. J. Prebensen, president of Temperature Equipment, who directed the campaign, looks over the citation with Roy Heier, vice president.

Three mailings were made for each dealer organization during the spring of 1954.

Each mailing contained different pieces of four-color sales literature prepared by Carrier for nationwide distributor-dealer use, a sales letter emphasizing different business advantages provided by air conditioned premises with the company name and dealer's reproduced signature, plus a business reply card.

The cards provided space for the prospective client's name and address, and also noted the best time for a representative to call.

Each mailing was sent by third class, bulk mail at one and one-half cents per letter.

The direct mail campaign was judged successful by scoring heavily in the following four categories: effective accomplishment of objectives, excellence of copy, over-all design, layout and appearance, and continuity of a well-planned program.

Television Commercials Get Whopping Results For Los Angeles Dealer

LOS ANGELES — Taking 30 minutes to sell 20 units of Norge home appliances is no trick—not if you do it the way Mrs. Dorothy S. Huse, home services director for Sues, Young & Brown, Inc., Norge southern California distributor in Los Angeles, did it for Witham's Appliance Co. of Bakersfield in a pre-Christmas promotion.

In 30 one-minute live television commercials given over a period of two days, Mrs. Huse effectively highlighted the Norge-Witham's story with Norge's October promotion—a Dacron comforter, 50 lbs. of "All," and the Norge "Ripplette" given free with the purchase of a Norge washer.

Adding 10 more spots to the 30 Mrs. Huse gave on Oct. 26 and 27, Witham's wound up the week with a whopping 20 units of Norge sold and the pattern set for a repeat effort in December, the distributor reported.

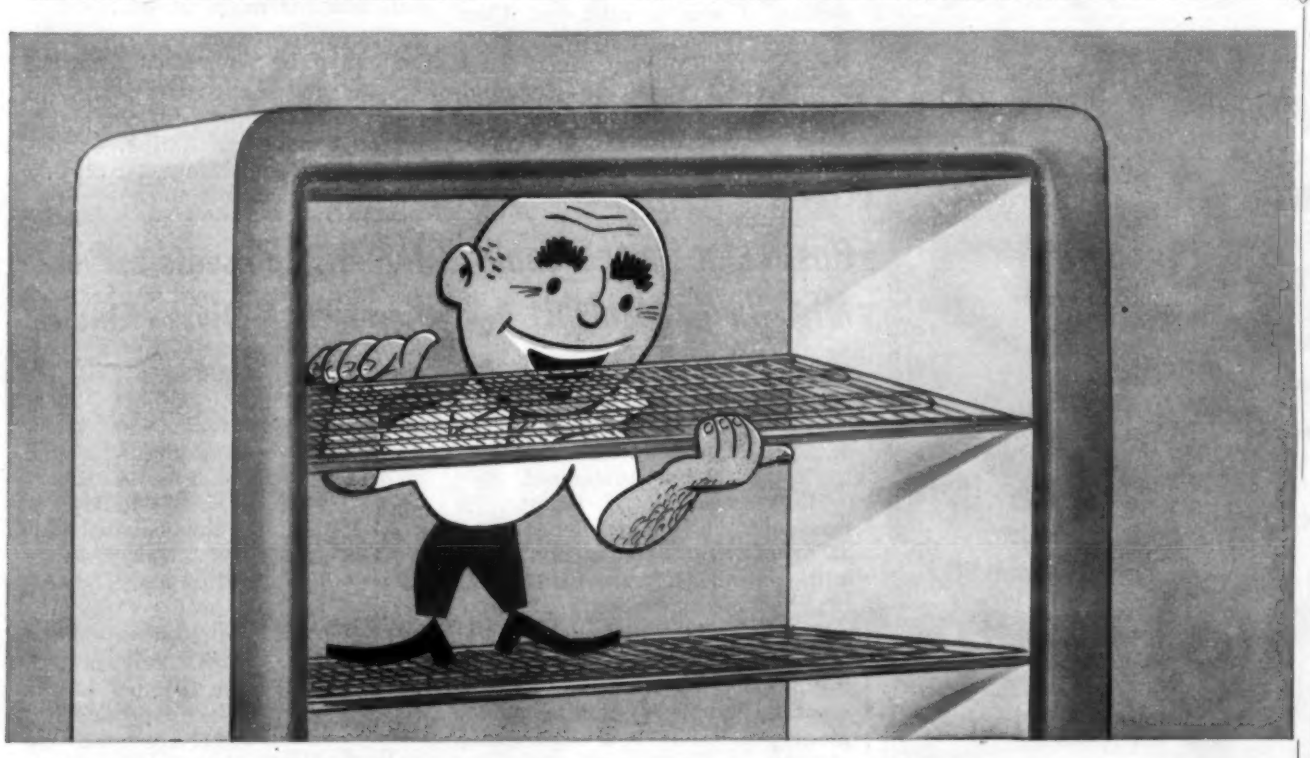
Banking on the attraction value of toys, Witham's jumped into December with a similar television spot campaign, using one of Norge's most successful premium deals—a complete Christmas toy package—as the traffic builder, it was stated.

Again, Mrs. Huse did live spots, featuring both the Norge washer and dryer and a series of home laundering "hints" to demonstrate the products. Result: 17 pieces sold by the third day following the beginning of Witham's saturation television campaign.

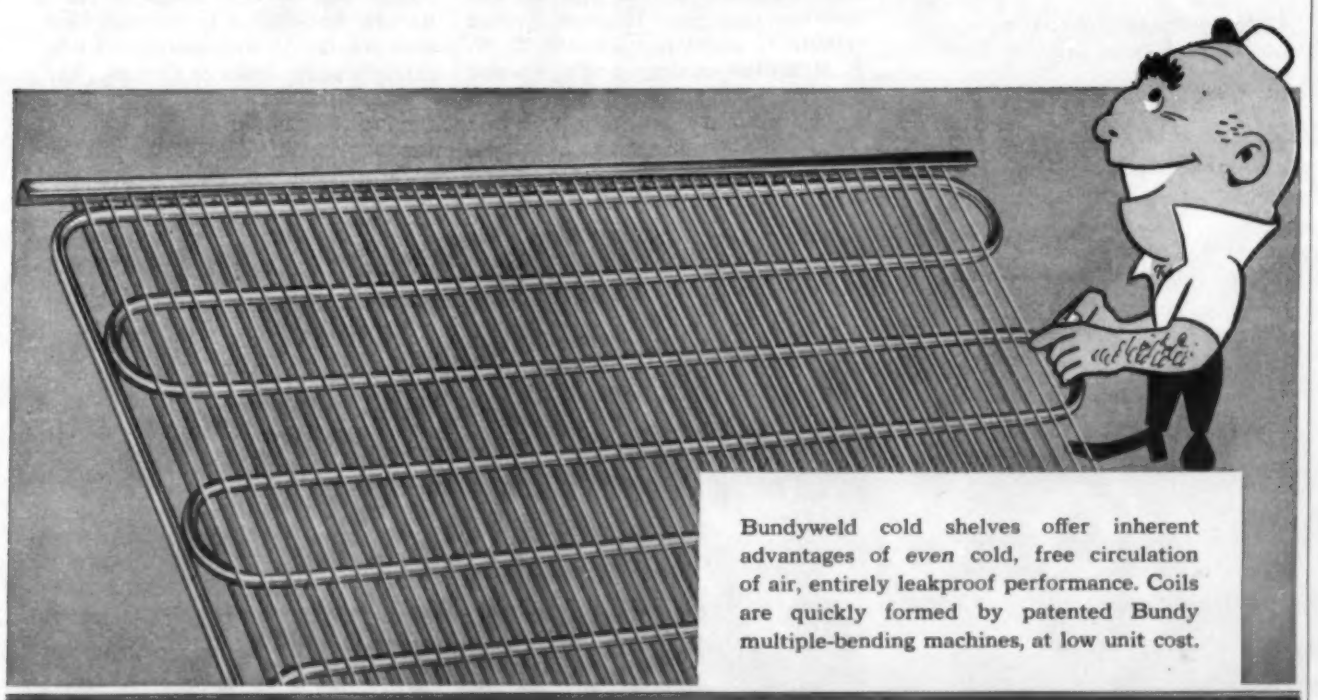
Partlow Corp. Appoints Ad. Auriema, Inc. as Export Representative

NEW HARTFORD, N. Y.—The Partlow Corp. here, manufacturer of industrial temperature controls, has appointed the firm of Ad. Auriema, Inc., New York City, to be its exclusive representative for exports.

Products of Partlow include recording, indicating, and non-indicating automatic thermal controls for heating and refrigeration applications, within the range of -30° F. to 1,200° F.



in freezer cold shelves

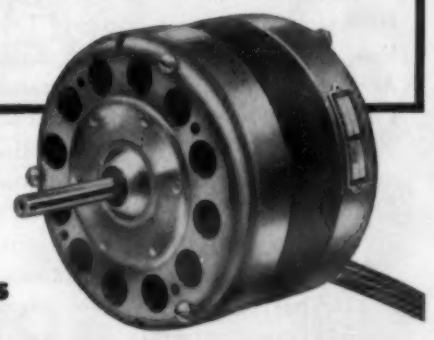


Bundyweld cold shelves offer inherent advantages of *even* cold, free circulation of air, entirely leakproof performance. Coils are quickly formed by patented Bundy multiple-bending machines, at low unit cost.

BUNDYWELD TUBING®
DOUBLE-WALLED FROM A SINGLE STRIP

Bundy Tubing Distributors and Representatives: *Cambridge 42, Mass.:* Austin-Hastings Co., Inc., 226 Binney St. • *Chattanooga 2, Tenn.:* Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg. • *Chicago 32, Ill.:* Lapham-Hickey Co., 3333 W. 47th Place • *Elizabeth, New Jersey:* A. B. Murray Co., Inc., Post Office Box 476 • *Los Angeles 58, Calif.:* Tubesales, 5400 Alcoa Ave. • *Philadelphia 3, Penn.:* Rutan & Co., 1717 Sansom St. • *San Francisco 10, Calif.:* Pacific Metals Co., Ltd., 3100 19th St. • *Seattle 4, Wash.:* Eagle Metals Co., 4755 First Ave., South *Toronto 5, Ontario, Canada:* Alloy Metal Sales, Ltd., 181 Fleet St., E. • Bundyweld nickel and Monel tubing are sold by distributors of nickel and nickel alloys in principal cities.

New LOYD SCRUGGS 6-POLE SHADED POLE MOTOR



Perfect for Room Air Conditioner and Fan Applications

Here's *custom-built* motor service at stock motor prices . . . to help you develop better products at lower cost!

Take advantage of Scruggs' fast-growing versatility in the fractional horsepower motor field. New plant facilities now permit wider scope, quick deliveries and lower pricing.

Check These Quality Features:

1. Copper-weld rotor for uniform performance
2. Long-life sintered bronze bearings
3. Extra large oil reservoirs
4. Extremely quiet running
5. Rotor electronically balanced
6. Double varnish impregnation
7. Design practically eliminates AC hum

WE'LL SEND YOU a sample motor built to your specs. Write today for detailed Data and Performance Chart. Immediate service!

THE Loyd Scruggs COMPANY
Festus, Mo.—A Dexey Corporation Subsidiary
MANUFACTURERS OF PRECISION INSTRUMENTS SINCE 1934

INSIDE DOPE

Learn to live and laugh—
Thus delay your epitaph

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

Pride-of-Possession reason for purchasing.

It was noted that "falsie" TV aerials (no television set connected) were being sold to people who wanted to impress their city neighbors.

Why, then, we speculated, shouldn't householders be proud to exhibit window-installed room coolers?

It's one appliance which can be *seen* after installation. Thus it takes rank alongside the TV aerial and a late-model car parked on the driveway. (New home builders aver that garages aren't popular nowadays; folks prefer to *show off* their autos outdoors.

Every veteran in our business knows that Pride of Possession is a chief motivating factor in the purchase of an expensive item for the home. Thus, it was bandied in that editorial, the obviously visible window room cooler was a "natural" for exploitation.

Many subscribers scoffed at that suggestion. Gave us "the razzberry" and "Bronx cheers."

Perhaps this notion wasn't foolish, though. Let us quote from a recent issue of *Business Week* Magazine:

"The shopper for a house is looking around as a shopper for a new car would do. He wants good engineering at an attractive price, yes—but he also wants the most social prestige he can buy. He wants his new house to be a sign of his worldly success.

"This is one reason an Omaha builders isn't pushing central air conditioning. 'Buyers don't seem to go for it,' he says. 'They prefer window units, and I think I know why. Built-in air conditioning isn't visible but a window unit that can be seen from the street adds swank.' "

Q. E. D.?

Thanks, Mr. Groscost

Three or four times yearly a "laugh" from Inside Dope is reprinted in *Reader's Digest* magazine. We've been both pleased and puzzled.

You see, the *Digest* doesn't subscribe to the NEWS. Nor does anyone in our office send Inside Dopes to the *Digest*.

At long last this puzzle has been solved. Subscriber T. C. Groscost of Columbus, Ohio, reveals that *he* is the worthy fellow who sends an occasional Dope quip to *Reader's Digest*.

Thank you sir!

At the same time, fan Groscost passes on to us a couple of good gags culled from Paul Crumes of the *Dallas Morning News*. Quote:

"Sign in East Dallas: PANT and BODIES. Sort of a Hollywood combination."

* * *

"Our Texas legislature can raise that needed 26 million in new revenue by charging Texans who own Cadillacs a nickel extra."

Memo from Geo. Hanning

Dear Boss:

Walter Young, Jr., Warren distributor in Chattanooga—gave me these pocket combs for you as a token of his appreciation of your fine editorials.

He said he uses them to relax hard prospects as follows:

When he finds that he is not getting anywhere with a prospect, he breaks the train of thought-opposition by asking:

"May I ask you a sort of personal question?"

The prospect usually will say yes. Then:

"Do people sometimes get in your hair?"

"Yes, they do," any prospect will admit.

"Well" (handing the prospect a comb) "try combing them out with this."

This helps break the ice and gets the conversation back on a more agreeable footing. Incidentally, each comb container is embossed with Walter Young's name as a reminder.

George

Commercial Refrigeration

Accessibility, Flexibility Stressed In New Tyler Self-Service Case Line

NILES, Mich. — A newly-designed line of service produce cases, designed for "easier accessibility and greater flexibility of use," has been introduced by Tyler Refrigeration Corp.

The re-styled models are built primarily for use by the small or medium-size food store in service sales for fresh refrigerated vegetables or fruits, but the double-glazed glass display doors are easily removable for conversion to self-service during rush hours, the company pointed out.

According to the manufacturer, each sliding display door serves the same area formerly served by two conventional doors, thus aiding accessibility and selection. Doors of the lower compartment, which formerly were of the hinged type, now slide open to save aisle space and eliminate traffic bottlenecks.

Choice of glass or solid doors for the lower compartment increase the variety of uses for this lower section, it was pointed out. Used for dairy products, bottled beverages, or additional produce, glass doors aid the display, Tyler said. Solid doors are standard when the lower compartment is used as a step-saving refrigerated storage center.

NEW TYLER self-service produce case with adjustable mezzanine shelf and movable dividers. Lower compartment serves as a step-saving refrigerated storage center.

"Variety of shelving arrangements adds substantially to the display possibilities of the new service produce cases," it was noted. "Angle of the perforated aluminum display shelf is adjustable to three positions. Wire mezzanine shelf adjusts up, down, in, out, and for angle of tilt.

"Contents of both shelves are illuminated by fluorescent lighting.

The Tyler cases are available in 6 or 9-ft. lengths, self-contained, or for remote installation. A non-refrigerated matching dry display section is also available.

Hussmann Names Caulk Mfg. Vice President

ST. LOUIS—John R. Caulk, vice president of Hussmann Refrigerator Co., has been named vice president in charge of manufacturing, the company has announced.

He succeeds W. H. Grant, vice president, who retired Feb. 1 after 25 years with the company. Grant will continue to serve Hussmann in an advisory capacity.

Caulk will be responsible for production, purchasing, engineering, service, research and development, personnel, quality control, plant protection, and engineering.

These changes were announced at a joint meeting of the company's 25 Year Club and Management Club.

The first meeting of the 25 Year Club was held a year ago. At the meeting this year Hussmann paid tribute to eight new members: W. B. McMillan, chairman of the board and president; Grant; Henry Giovanni, secretary and treasurer; and W. H. Sudekum, Betty Warman, Irene Krueger, Frank May, and R. Hrasky.

Miller Represents Servel Commercial Div. In Chicago

EVANSVILLE, Ind. — Appointment of Dennis J. Miller as field sales representative in the Chicago area for the Servel Commercial Refrigeration Div. was announced recently by John F. Zubrod, division product manager.

D. J. Miller

Miller has been a member of the company's field service staff for the past two years. He succeeds Charles M. Heathman, who resigned from the firm.

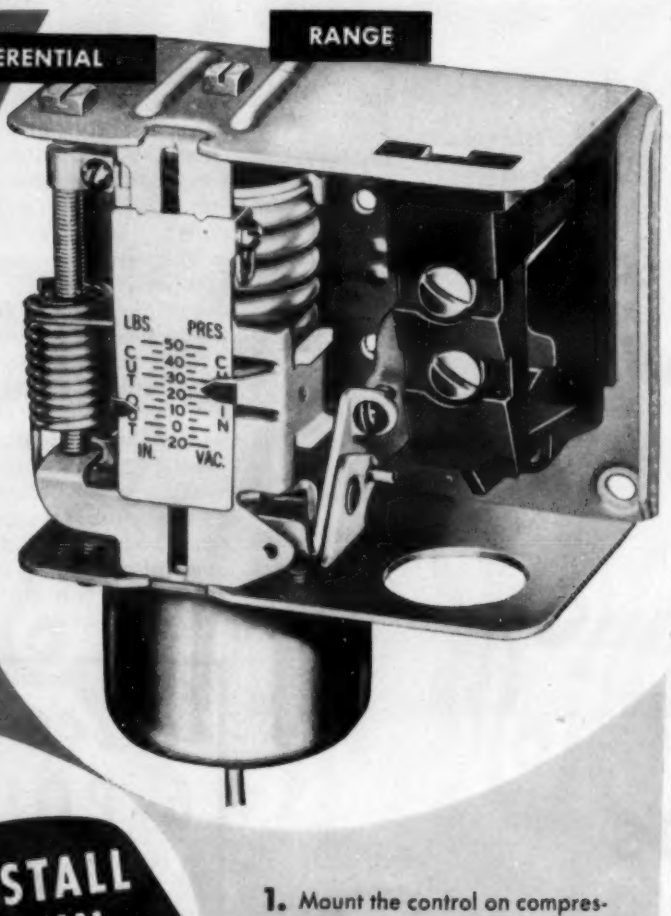
Before joining Servel in 1952, Miller was service manager for a fixture distributor in Birmingham, and previously was associated with refrigeration firms in Texas.

His experience in commercial refrigeration and air conditioning extends over an 18-year period. He is a member of both ASRE and RSES.

PENN

Series 270

SINGLE-POLE REFRIGERATION CONTROL



How simple can installion get? Take a look at the three steps detailed at right! And adjusting is simpler still! Because of Penn's direct-reading, calibrated scale indicating cut-in and cut-out settings, there's no time-wasting subtraction or addition. And that's not all — the Penn 270 Single Pole Refrigeration Control combines this simplicity with low cost and top performance. Your wholesaler can tell you all about its money-saving time-saving advantages. **Penn Controls, Inc., Goshen, Indiana.**

INSTALL IT IN 3 STEPS

1. Mount the control on compressor unit or any flat surface (universal mounting bracket furnished).
2. Connect flare nut on power element capillary to compressor suction valve.
3. Remove control cover and make two electrical connections (terminals are easy to get at).

ADJUST IT IN 2!

1. Turn range screw to raise or lower cut-in setting as required (differential remains constant).
2. Turn differential screw to raise or lower cut-out setting independent of cut-in setting (this narrows or widens differential).

Series 270 available in single or double pole construction — with or without external adjusting knob.

PENN AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

BOOST YOUR PROFITS SKY HIGH

. . . BY SELLING THE FAMOUS CARBONATORS THAT REDUCE BEVERAGE COSTS TO ROCK BOTTOM

A Model for every need . . . Preferred by leading users, from neighborhood Taverns to luxurious Cocktail Lounges, from Drugstores to Major League Ballparks.

- Highest carbonation.
- Most foolproof.
- Midget size with giant capacity

Jet Foamescent Carbonators by Carbonic Dispenser U. S. Patent No. 2,508,677.

MAIL THIS COUPON TODAY

For literature outlining the opportunity now open to make bigger profits selling Carbonic Dispenser Equipment.

Name .....

Address .....

City ..... State .....

CARBONIC DISPENSER INC.

General Offices: Canfield, Ohio
Branch Offices:
1851 Randolph St., Los Angeles, Calif.

IN CANADA: GENERAL EQUIPMENT CORP., LTD., TORONTO, ONT.

Prize Winning Sales

Small Town Dealer Looks Toward Paris Holiday, Big Selling Season Ahead

CHICAGO — An Ottawa, Ill. couple will see Paris in the springtime next March thanks to Mitchell Mfg. Co.

Roy Knudtson, who sells Mitchell room air conditioners, was the first winner of a nine-day Parisian holiday offered by the company as part of an incentive travel plan which rewards pre-season dealer purchases with free luxury vacations.

Knudtson, who with his brother Russell, has operated an appliance store at 816 LaSalle St., Ottawa, for the past 10 years, is optimistic about sales of room air conditioners for the coming season.

"We sold more than 30 units last year in this town of 20,000 and we expect to easily top 50 in 1955," said Russell Knudtson.

The Knudtson store, which has been growing since its beginning 10 years ago, currently is engaged in a new project—the building of a new shop which will be devoted entirely to the servicing of the appliances and television sets the brothers sell.

They also are building into their retail store a radio broadcasting studio from which will originate a daily, 15-minute quiz show over the local radio station.

Knudtson originally planned a Nassau holiday, Mitchell's reward for a 25-unit purchase.

However, when the brothers bought the 25 air conditioners they also became eligible for and won a drawing offering a free ticket to Europe.

Roy then decided he could not very well go without his wife, so he bought 25 more air conditioners, bringing the total to 50 and another Paris vacation.

Still a third beneficiary of the Knudtson's good fortune is Lee Taylor, a salesman for Graybar Electric Co., Peoria, Ill., a Mitchell distributor. Taylor sold the sets to the Knudtsons and when their name popped up in the drawing, he, too, won a trip to the City of Light.

McGrannahan Represents Perfection In Kansas City

CLEVELAND—Perfection Stove Co. announced recently that it has employed E. J. McGrannahan as its commercial room air conditioner representative in Kansas City, Mo. He will be contacting the management of such buildings as offices, hotels, and motels.

E. McGrannahan

Just before coming with Perfection, McGrannahan was manager of air conditioning for Edward Keith, Kansas City, Mo. Previously, he had been sales manager of the Appliance Div. of RCA Victor Distributing Co., manager of the Appliance Div. of Jenkins Music Co., and district manager for Capehart.

Magic Chef Quits Air Conditioning

ST. LOUIS—Magic Chef, Inc. is getting out of the room air conditioner business after two years in this field and has stopped marketing central heating equipment, it was revealed recently by Cecil M. Dunn, president.

He explained that these steps were taken "because the gas cooking business is basic to Magic Chef and is what made the company great."

He added: "We have to direct the energies of the company to that basic business and get it in shape before we can spread out."

Dunn and James A. Marohn, financial vice president, said 1954 sales were off about 25% compared with the previous year, when the company lost $109,982. They also reported that the company's office building here and two plants are up for sale. Offices will be moved to the research building which is adjoining the St. Louis plant.

Magic Chef will offer six models of electric ranges this year in addition to gas stoves, space heaters, and commercial cooking equipment.

Cuban Concern To Make Fresh'nd-Aire Room Units

CHICAGO—J. W. Alsdorf, president of Cory Corp., has announced that Air Conditioning Assembling Corp., Havana, Cuba, has been licensed to manufacture and assemble Fresh'nd-Aire pushbutton automatic room air conditioners for that growing Carribean market.

President of the Havana firm is George Minier, an air conditioning pioneer of the island republic.

Fresh'nd-Aire models involved will include ½, ¾, 1, and 1½-ton units with special electrical systems designed for specific use in that part of the world. Air Conditioning Assembling Corp. will be in full scale production within the next few weeks.

Besides this agreement, Cory, through its export agency, The A. J. Alsdorf Corp., is in the midst of concluding similar license contracts with other overseas organizations to manufacture, assemble, and distribute Fresh'nd-Aire air conditioners in Mexico, South America, and the Middle East.

Watts Bar Resort Cools 50 Vacation Cottages

WATTS BAR DAM, Tenn.—At the Watts Bar Resort Village here, owner Pete Smith has equipped each of the 50 vacation cottages with Servel room air conditioners.

The village was constructed recently to take advantage of no-closed-season areas built up behind Watts Bar Dam. The cottages accommodate parties of two to eight persons and have complete housekeeping equipment.

In addition, a Servel electric Wonderbar refrigerette is available as a room-service feature.

Epperson Dies on Trip; Headed Houston Firm

HOUSTON, Texas—A. T. Epperson, 55, founder and president of Standard Refrigeration & Air Conditioning Co., died Jan. 21 of a heart attack while on a fishing trip in Palacios.

He was a charter member and past president of the Refrigeration Service Engineers Society of Houston.

MITCHELL
ROOM AIR CONDITIONERS
Entirely New... Unequalled!

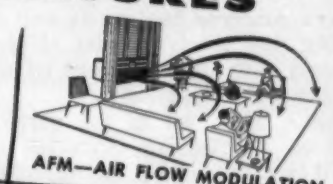
IN EFFICIENCY

Comparison of five leading brands of room air conditioners with M-345
MITCHELL 1955 ¾ H.P. unit

	Composite Average of five leading brands	MITCHELL M-345
Air discharge in room	285 C.F.M.	335 C.F.M.
Air discharge over condenser	450 C.F.M.	650 C.F.M.
Face area of evaporator coil	240 sq. in.	308 sq. in.
Evaporator tube size	⅝ O.D.	½ O.D.
Face area of condenser coil	174 sq. in.	308 sq. in.
Amperage draw ASRE conditions	14.4 amps.	10.4 amps.
Amperage draw U.L. conditions	15 amps.	11.5 amps.
Power Factor	78%	90%
Sustained low voltage operation	103 volts	95 volts
Sustained high temperature operation	115° F.	145° F.
Velocity Control	None	Yes
Freon charge	18 ozs.	26 ozs.

IN SALES FEATURES

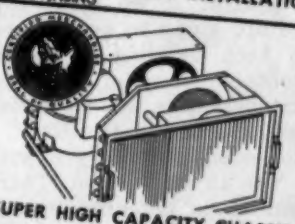
COOLS A ROOM IN LESS THAN 5 MINUTES
A flick of the AFM switch instantly gives 20% greater air velocity, 40% more volume, for a deep penetration of high velocity cooling.


AFM—AIR FLOW MODULATION

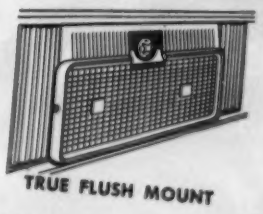
FROM CARTON TO COOLING IN 5 MINUTES
Installer merely opens carton . . . sets outer cabinet in the window . . . pulls out the flexible accordion pleated sides . . . slides in chassis, and air tight, dust tight installation is complete.

EXPANDO-MOUNT INSTALLATION
PAT. PENDING

DELIVERS MORE COOLING POWER THAN ANY OTHER UNIT
The new MITCHELL Super High Capacity Chassis has 28% larger evaporator, 33⅓% larger tubes, 34% larger fan capacity, 70% wider condenser and carries the seal of the United States Testing Co., Inc. for superior and consistent operating efficiency.


SUPER HIGH CAPACITY CHASSIS

FITS FLAT WITH THE WALL . . . NO BULGE
MITCHELL takes no space in the room. The smart Cadillac Beige cabinet fits closer to the window than the sill, permitting drapes to be drawn. Only the comfort tells you that MITCHELL, the World's Finest Room Air Conditioner, is there.


TRUE FLUSH MOUNT

Write today FOR SENSATIONAL 1 OUT OF 20 PROMOTION AND EARLY BIRD TRAVEL PLAN

MITCHELL MANUFACTURING CO. Dept. AC-3, 2525 N. CLYBOURN AVE • CHICAGO 14, ILL.
In Canada: Mitchell Manufacturing Co. • 19 Waterman Avenue • Toronto, Canada

CLOSED 'WET' SYSTEM FOR YEAR-ROUND AIR CONDITIONING

How It Is Adapted for Central Plant, Multi-Room Installations; Basic Principles of System Using Chilled and Hot Water Outlined

Editor's Note: One way of providing year-round air conditioning for residential, commercial, or industrial applications is the use of closed systems which circulate chilled water in summer and hot water in winter from a central plant to fan-coil-filter units located in the space to be air conditioned.

The following talk, which carefully outlines the basic principles of such a system, was presented at the ARI Educational Conference in Minneapolis held during the 17th annual convention of the Refrigeration Service Engineers Society.

By W. B. Cooper, Manager, Heating & Cooling Systems Dept., American Radiator & Standard Sanitary Corp.

Just what is air conditioning? What does it mean to you? Does it mean just cooling? Does it mean a combination of cooling and heating? Or does it involve other factors that have to do with comfortable living in winter as well as summer?

Here is the definition offered by the American Institute of Management, and which I think comes close to answering the job:

"Year-round interior climate control."

That's a long way from just cooling isn't it? And yet cooling is an indispensible part of it.

4 FACTORS OF 'INDOOR CLIMATE CONTROL'

Then they go on to give the four main factors that make up "year-round interior climate control":

1. Control temperature within a given space.
2. Control relative humidity.
3. Keep air in constant, gentle movement.
4. Filter out impurities.

As you can see, each of these factors concerns heating as well as cooling and involves other related subjects such as movement of air and control of humidity.

That's what we in the service business are letting ourselves in for if we are really going after the air conditioning business, and we might as well face it and get prepared for it.

Today and tomorrow air conditioning is much more than refrigeration or cooling. It involves all the factors of year-round interior climate control. If we as service engineers are going to keep growing and keep building a bigger, more profitable place for ourselves in this business, this new viewpoint might well be our platform.

I'm not going to bore you with figures. You all know them. There is a tremendous potential in this young business. It's worth everything we can put into it, and with your specialized knowledge in the field of refrigeration and cooling, you have the inside track to make the most of it.

There's nothing like being ready when opportunity knocks. It's up to us to get ready because if we are prepared, and only if we are, we are going to get it in larger volume than we have ever seen before.

Having asked and answered some questions as to just what our business is, and what we mean by air conditioning, let's look at a complete air conditioning system particularly adapted for central plant, multi-room installations.

This system employs both a boiler and a chiller as well as individual room units to deliver and circulate the conditioned air.

WHAT IS 'REMOTAIRE' SYSTEM?

In our company we call this system "Remotaire." By definition it is a system of air conditioning using a central plant source of cold water for cooling and hot water for heating. This is connected to remotely located fan-coil Remotaire type units that produce the comfort conditions within the room.

See Fig. 1.

This particular installation might well be a motel, or a section of a hotel or office building.

On the cooling cycle the cold water produced by the chiller is pumped to the Remotaire units located in the individual rooms. The water flows through the coils in the chiller and through the water piping system to the room unit, which delivers the cool air to the room.

When the water leaves the room unit, it enters the return water piping circuit and goes back to the chiller for re-cooling. This completes its path around the circuit.

CHILLER IS VALVED OUT ON HEATING CYCLE

On the heating cycle the same piping, the same pump, and the same Remotaire units are used, but the chiller is valved out of the circuit and the heat source is valved in, thus producing hot water for the circuit.

Some type of expansion tank is required in the circuit to allow for differences in volume of water due to temperature variations, and must be directly connected into the circuit at all times.

As you know, a larger volume of water is required to be circulated for cooling than for heating, so piping and pumps are usually selected to provide the required cooling.

This, therefore, assures the fact that the water volume is sufficient to deliver the desired volume of heat.

It is also most important that insulation for the piping have a moisture vapor barrier on the outside so that moisture cannot enter the insulation and reduce its effectiveness—a very common defect.

Now before we take a closer look

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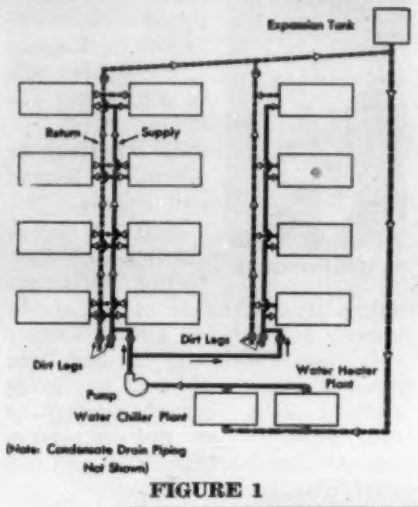
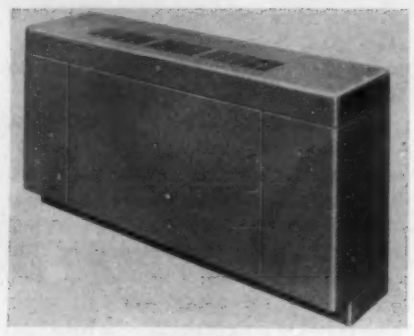


FIGURE 1



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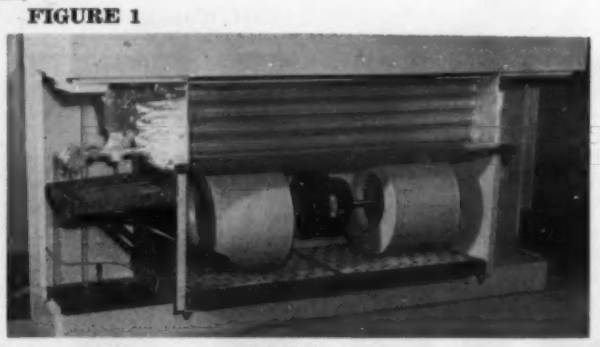

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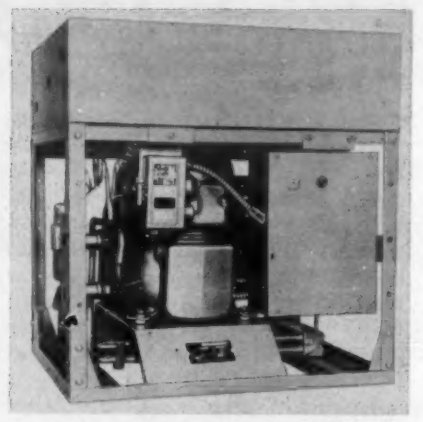


FIGURE 4

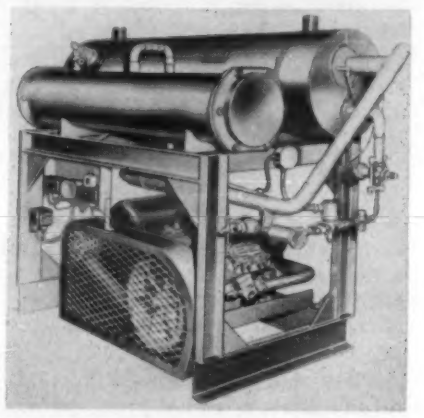


FIGURE 5

LARKIN CEILING HUMI-TEMP

Price is only one factor in the selection of any product—especially one that has so important a task as protecting valuable perishables. Performance must come first. Quality cannot be overlooked. Durability is highly important. Larkin has all of these. And Larkin has low prices, too. Compare them and see for yourself how low they are.

For the latest Larkin price list, see your wholesaler. If you wish, write direct to us. We shall be glad to send you one.

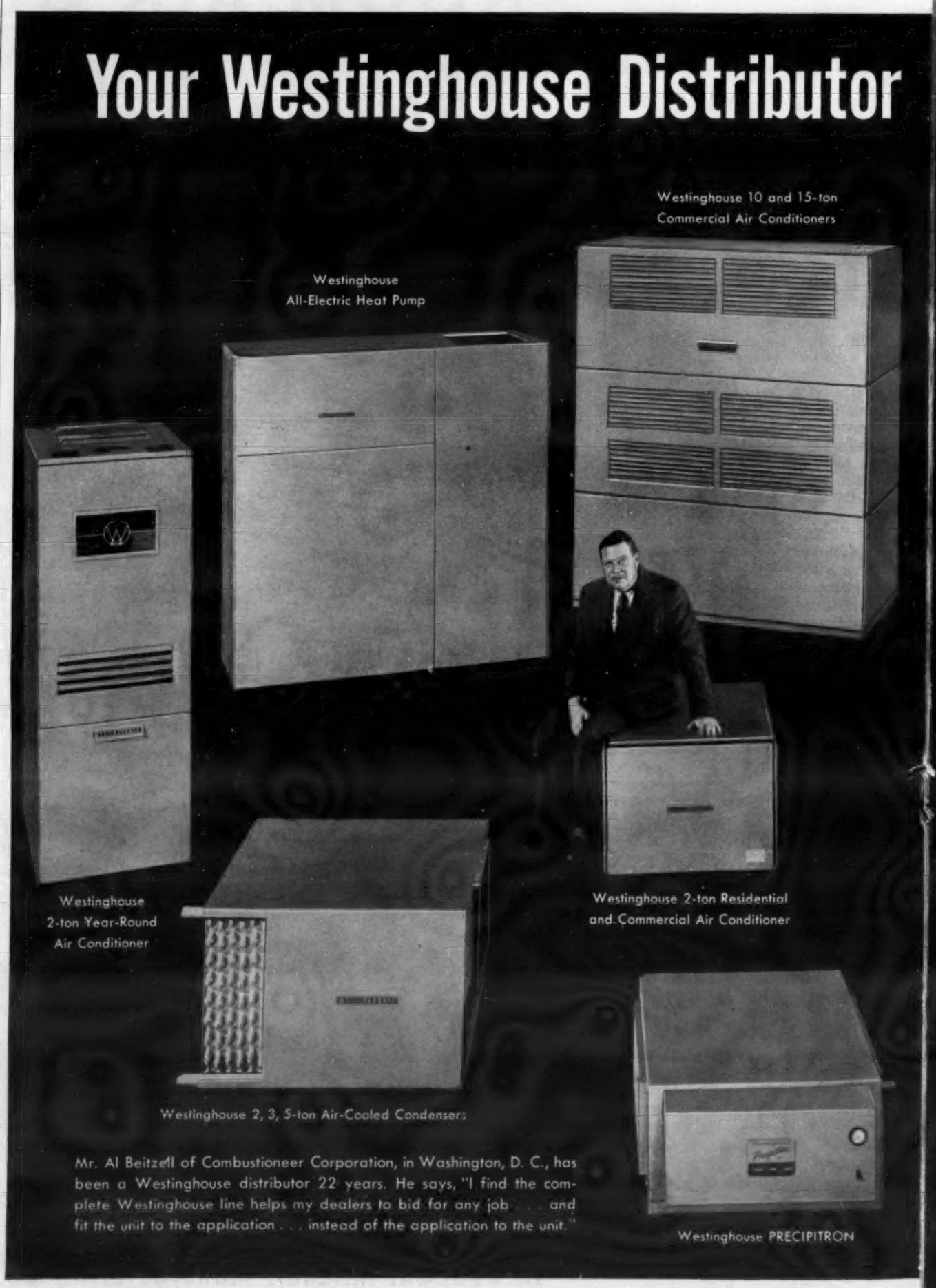
Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans.

WATCHDOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS

279 MEMORIAL DR., S.E. • ATLANTA, GA.

Your Westinghouse Distributor


Westinghouse 10 and 15-ton Commercial Air Conditioners
Westinghouse All-Electric Heat Pump
Westinghouse 2-ton Year-Round Air Conditioner
Westinghouse 2-ton Residential and Commercial Air Conditioner
Westinghouse 2, 3, 5-ton Air-Cooled Condensers
Westinghouse PRECIPITRON

Mr. Al Beitzell of Combustioneer Corporation, in Washington, D. C., has been a Westinghouse distributor 22 years. He says, "I find the complete Westinghouse line helps my dealers to bid for any job . . . and fit the unit to the application . . . instead of the application to the unit."

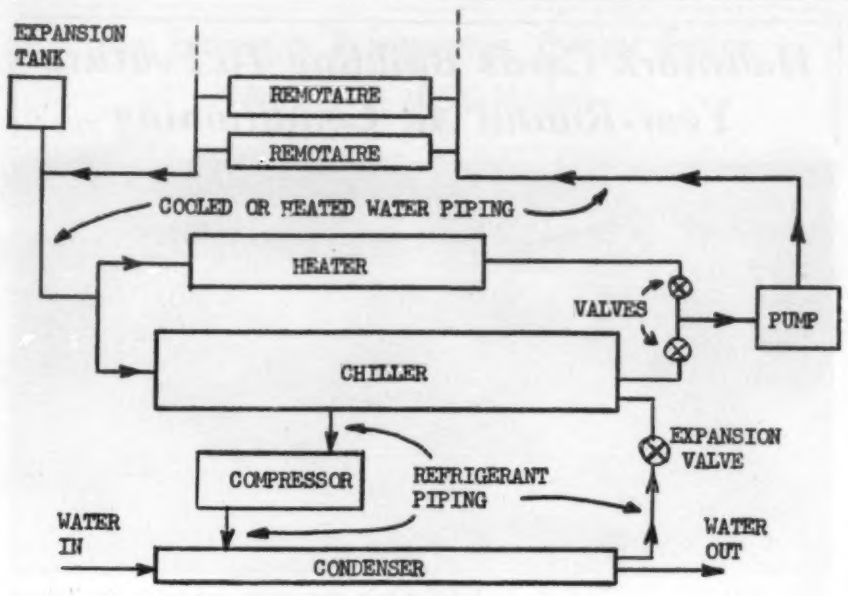


FIGURE 6

Basic Principles of 'Wet' System--

(Continued from preceding page)

at the two basic types of chillers that are used with this system, let's examine the Remotaire room unit itself briefly.

The room unit looks something like this. (See Fig. 2.)

It can be controlled by a wall thermostat and a two-speed or three-speed manual fan switch to provide the room temperature desired.

As the heated or chilled water comes to the individual room units, it circulates through coils (see Fig. 3), fresh, outside air is drawn in, mixed with return air from the room, filtered, passed over the 4-row coil, and delivered to the room through a supply grille at the top.

Briefly, that's what happens on the delivery end in a room unit of this type.

Frankly, the service problems are minor. All parts are standard and so arranged that they can be easily reached for lubrication, removal, or repair.

Now for a look at the chillers themselves. I have an idea that

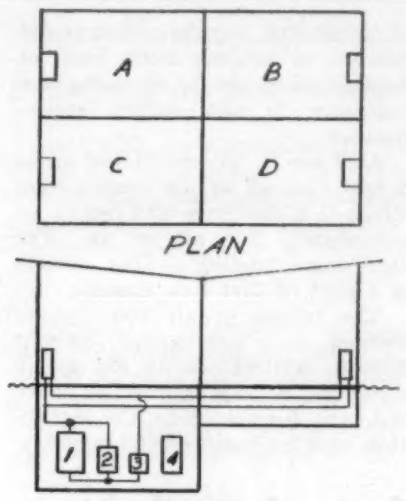


FIGURE 7

most all of you are familiar with chillers of various types, although I wonder if I am not right in assuming that in most cases their use is in connection with various industrial processes requiring chilling rather than as an element in year-round air conditioning.

I once had a friend in the advertising business who always said, "Never assume anything." Therefore, I am going to run the risk of boring some of you and begin at the very simple beginning.

There are two basic types of chillers. (See Figs. 4 and 5.)

The smaller, hermetically sealed type (Fig. 4) is especially well suited to small commercial and residential work. These, in our case, run in 2, 3, and 5-hp. sizes.

The larger packaged units (see

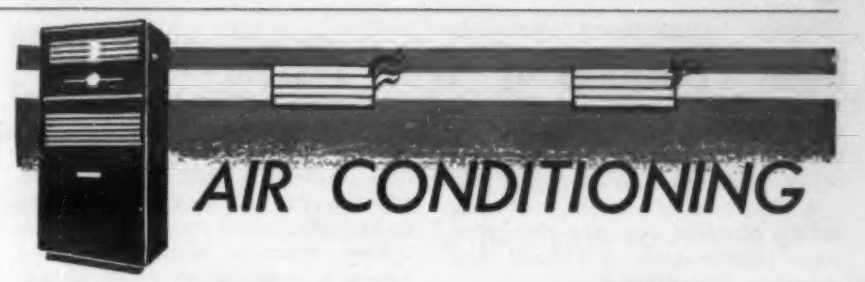


Fig. 5) are primarily for industrial and commercial applications. With us these run from 7½ to 75 hp., and, of course, may run much higher.

BASIC PRINCIPLES ALWAYS APPLY

Whichever type is used, the same basic principles apply, and similar operating parts are found. It's just like A, B, C, and certainly there are no mysteries about it.

The complete cooling cycle (see Fig. 6) is made up of a condenser, a compressor, the chilling unit itself, and the Remotaire unit in the room. Within the chilling unit, the water passes through a series of coils and is surrounded by the refrigerant in the shell.

Regardless of whether the unit is hermetically sealed or "service-sealed," these main parts exist and to varying degrees require service.

Let's look first at the hermetically sealed unit. Time was when there was a good deal of resistance to this type of unit from the service engineer himself. For the odd reason that it is sealed, the refrigeration circuit is covered by a five-year warranty on the part of the manufacturer, and therefore the unit requires less service.

This is true, and yet, in these days of increased service load isn't this a big advantage rather than a disadvantage?

EXPERT SERVICE REQUIRED

And it is wise to point out that expert service is needed for proper installations, and that the motors, the electrical controls, the safety controls, and the stop and start controls on the compressor are generally covered by a one-year guarantee only, rather than five.

Frankly, we are very enthusiastic about the future of this hermetically sealed unit and believe you will find more and more of them in service in a wide variety of fields, particularly in multiple application.

For example, let's take the case of a certain motel. It was made up of 40 units laid out in groups of four units each. Instead of using one 10-ton system, 10 2-ton systems were employed.

By excavating a small basement space under one unit (Fig. 7), and installing a 2-hp. hermetically sealed chiller as well as a boiler, and providing a Remotaire unit in each room, the air conditioning problem was solved year-round.

And with each four-unit group separately served, only that portion of the entire motel that was in use at the time required operation of the heating-cooling system.

SUGGEST OTHER USES

Many other interesting uses for this multiple installation suggest themselves, especially where the heating and cooling load varies, and where economies can be effected as a result.

One possibility that suggests itself for exploration might be the use of hermetically sealed units to supply a continuous flow of cold drinking water in an office or factory.

As copper piping is used in these units, this is altogether possible and practical and might result in considerable savings, depending upon the installation.

To give you much more detail on these hermetically sealed units, we have prepared a complete specification booklet which you are most welcome to have if you are interested.

The service-sealed units have the same basic components as the hermetically sealed units, but, of course, are larger and serviceable insofar as the refrigeration cycle is concerned.

All of these units have expansion valves, solenoid valves, and sight glasses in the liquid lines.

All leading manufacturers insist that these units be sold only where adequate trained refrigeration service is available to provide installation and maintenance service.

In fact, we strongly recommend service contracts to every user of this type of equipment. This makes sense from everyone's viewpoint. Let's look at it for a moment.

Year-round installations of this general type requiring complete heating and cooling cycles and served by boilers and chillers are finding increased use in commercial and industrial buildings of almost every type where multiple rooms are to be served from a central source.

FLEXIBILITY APPEALS TO MOTELS

Motels have found this system especially suited to their needs because of flexibility, individual room control, and separate supply of air for each room.

Hospitals, where space is at a premium, like the elimination of all ductwork, the ease of zoning, and the ability to control each room depending upon the requirements of each patient.

Office buildings and hotels have found added economy in installation, in space consumed, as well as added comfort for their guests and occupants.

SERVICE ENGINEER NEEDS TO KNOW:

And all of these and other installations have this in common from the service point of view: In order to keep them and their occupants in year-round comfort, they need a service engineer or service organization who knows not refrigeration or cooling only, but these five things:

1. The *refrigeration cycle,* and that means an intimate working knowledge of the compressor and its parts, the condenser, the expansion valve, the solenoid valve, the chilling unit, and refrigerant itself, and all the other problems in which we as refrigeration service engineers are specialists;
2. The *fuel cycle,* which involves all the operations connected with the boiler and its controls;
3. The *water circuit* (both cooling and heating), including pumps,

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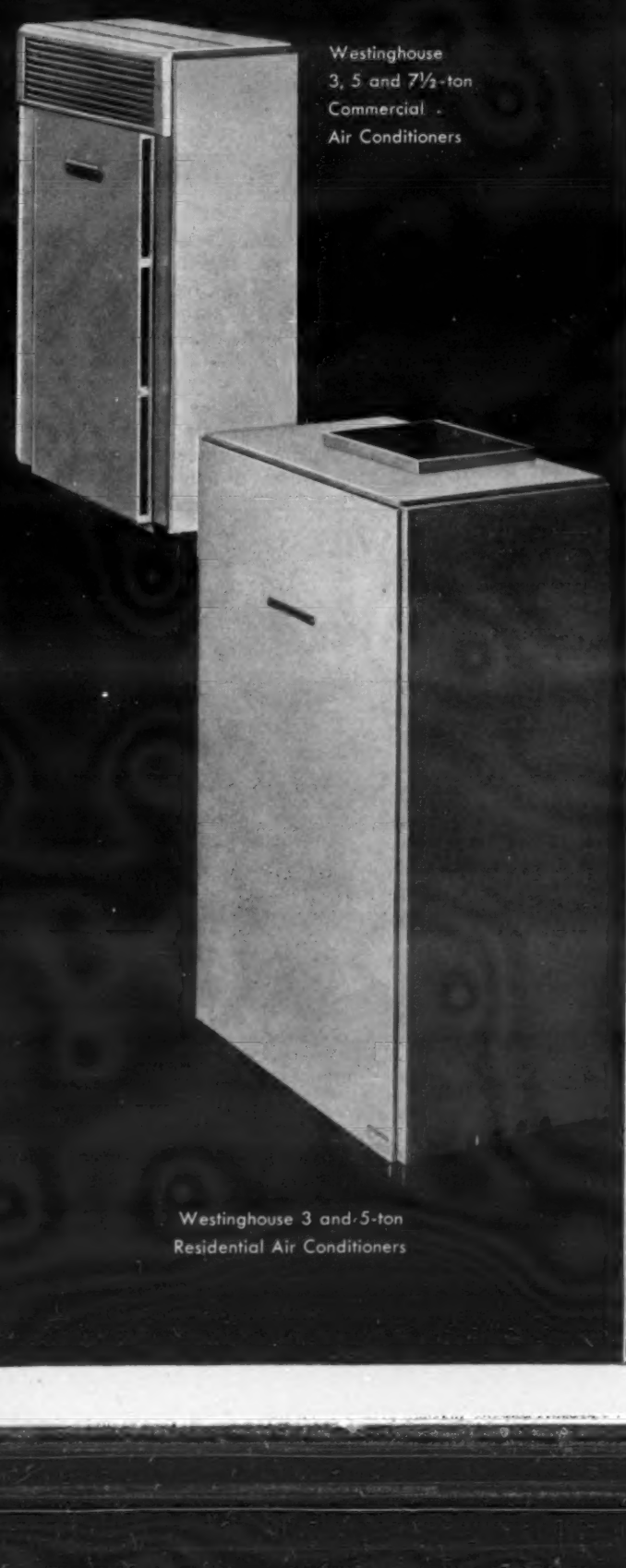
helps you increase profits with



A COMPLETE LINE TO GIVE YOU THE EDGE OVER COMPETITION

Why not get the better profits you ought to have in '55? It just makes good sense to tie up with the Distributor who offers you the quality products with customer acceptance.

The Westinghouse Air Conditioning Distributor offers you a complete line of self-contained Residential and Commercial Air Conditioners . . . year-round Heating and Cooling Units . . . the all-electric Heat Pump . . . and the exclusive Electronic Air Cleaner—PRECIPITRON. Any one of these units will mean added profits—by giving you an additional sales wedge. To get this line with the brand name that's a household word, *call your* Westinghouse distributor.

In addition to the *Complete Line*, ask him to give you the details on the following:

Complete Sales Promotion Package. Newspaper ad mats and Direct Mail to get leads and build showroom traffic . . . radio and TV scripts, displays, identification signs, banners, and handout literature.

Complete Sales Training. At the factory and in your region you can attend lectures and demonstrations on the product, on installation and on selling techniques.

Complete Financing—complete customer time-payment plan. Facilities tailored to your particular needs. This is the year to make the move. Aim for leadership with your Westinghouse Distributor. He offers you the only complete air conditioning line for every market.

YOU CAN BE SURE...IF IT'S

Westinghouse

J-80460

MAIL THIS TODAY

Westinghouse Air Conditioning Dept. R-1
Box 510, Staunton, Virginia

I want the complete story on the 1955 Westinghouse Air Conditioning Line . . . and Sales Promotion Package—"Invitation to Leadership."

☐ I am now an air conditioning dealer
☐ I am not yet in the A/C Business

I now handle the following lines:.....

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

20-Year Guarantee!

ON THE WETTED DECK SURFACE

HALSTEAD & MITCHELL COOLING TOWERS

2 to 100 tons

"Built like a Battleship"—economical, lastworthy. Pressure-treated wood in wetted deck surface guarantees against rotting or fungi growth. Stainless steel fan and shaft, plus individual cabinet coatings of Vinsynite, Vinyl Aluminum and chlorinated rubber, add important years of life. Wholesalers in Principal Cities

Halstead & Mitchell

BESSEMER BLDG. PITTSBURGH 22, PA.

Basic Principles of 'Wet' System--

(Concluded from preceding page)

pipes, Remotaires, valves, and other controls;

4. The *control system,* including safety controls, capacity reduction, room temperature, and water temperature controls;

5. The *power system,* including starters, disconnects, overload cutouts, and other power circuit equipment.

We at American-Standard consider all of these cycles, systems, and circuits to be part-and-parcel of the same over-all air conditioning problem, and we wonder if you don't agree with us on that.

That is why we operate a continuous heating-cooling school with full operating equipment in Buffalo headed by a graduate heating-cooling engineer who has devoted his lifetime to teaching in this field.

That is why, too, we have prepared complete specification books and operating and service manuals dealing with these various steps, and why you will find specially trained heating-cooling men at each of our offices. All of these are yours to use.

Your job is not an easy one, yet it is vital to the customer and to the business, yours and mine.

When you are called in to service equipment it may be that your man finds it is not really a service problem at all, but a problem of faulty or careless installation or application.

Piping may have been improperly insulated, or the heating and cooling capacity may have been wrongly figured because of failure to consider some operating factor.

One example comes to mind where a large office room apparently could not be properly cooled on hot summer days. It was a service engineer who discovered that IBM machines operating in the room, when going full blast, required 67 tons of refrigeration simply to offset the heat that they developed. This had not been included in the cooling load calculations or the original selection of equipment for the job.

So from dirty filters to blown fuses, the service engineer is called upon to serve, yet in that challenge and in that opportunity lies the real future of our business.

Our customers expect complete, integrated service when we talk about "year-round air conditioning" or "year-round climate control." And when it is carefully organized on the basis of a well planned service contract, it pays off:

To the *customer,* in terms of avoiding shutdowns, reducing layoffs, establishing fixed costs, prolonging equipment life;

To the *manufacturer,* in terms of getting best use from his equipment, of getting and holding satisfied customers;

To the *service engineer,* in terms of providing regular, year-round income, of leveling work load, of holding good men, of exposing him regularly to new selling opportunities.

As I see it, we are facing up to a new concept of air conditioning which is a challenge and can be an opportunity for all of us. The Remotaire heating-cooling system is a part of that new concept.

The future of air conditioning defined as "year-round interior climate control" is as big as all outdoors, or let's say, as big as all indoors—for the home, the institution, and for business and industry.

Carrier Names Kooistra To Washington, D.C. Post

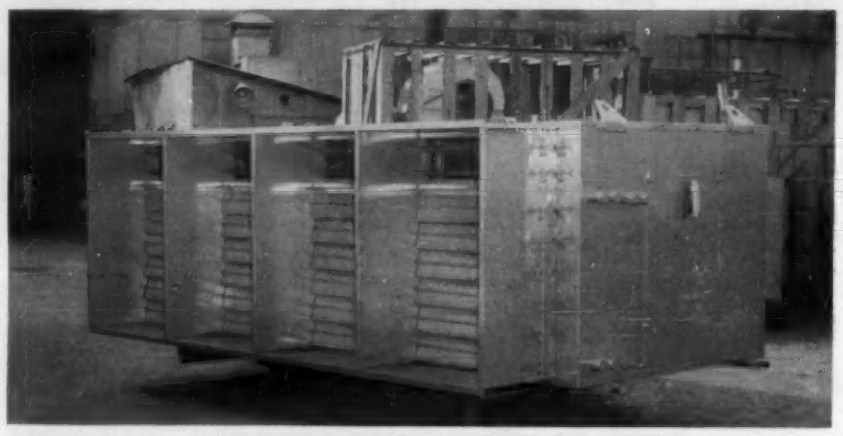
SYRACUSE, N. Y.—John F. Kooistra, former manager of Carrier Corp.'s San Francisco branch office, Machinery & Systems Div., will represent the division in Washington, D. C., it was announced by Charles V. Fenn, division vice president.

Kooistra will devote the major portion of his time to liaison activities with the Navy Department and the Maritime Commission involving marine air conditioning and refrigeration equipment.

Prior to his promotion, Kooistra had spent all of his 25 years with Carrier on the west coast.

He holds membership in the American Society of Refrigerating Engineers and other groups.

Hallmark Cards Building To Feature Year-Round Air Conditioning



ONE OF 45 Drayer-Hanson heavy air handling units that will be installed in the Hallmark Cards building in Kansas City, Mo.

KANSAS CITY, Mo.—Complete year-round air conditioned comfort is ahead for the occupants of the new Hallmark Cards building now under way here.

The $8 million project, covering more than a million square feet of floor space, is due for completion next June.

The new building was designed by Welton Becket & Associates, Los Angeles. Outstanding among its many features is a full-scale parking lot on the roof surface of the three-story building.

Some 500,000 sq. ft. are to be air conditioned. The air handling equipment selected to do the job was Drayer-Hanson "HH-Series" heating and ventilating units. Forty air conditioning units totaling 465,000 c.f.m. will supply heating and cooling, as needed, to every area of the building.

The HH Series features heavy, electrically welded angle-iron frame construction, an abundance of primary and coil surface, and protective vinyl-coated insulation, Drayer-Hanson said. External hangers to facilitate field handling are provided on each unit.

Installation of the Hallmark job is being handled by Interstate Heating & Plumbing Co., Kansas City. M. A. Disney, representative for Drayer-Hanson in that area, finalized the negotiation for the West Coast manufacturer.

Worthington Will Air Condition 17 Stores In Suburban Minneapolis Shopping Center

HARRISON, N. J. — Worthington Corp. equipment will air condition 17 of the largest stores in the new shopping center in St. Louis Park, a suburb of Minneapolis, it was announced here recently.

Equipment, sold to Knollwood Plaza Shopping Center through Worthington dealer Spencer Air Conditioning Co., Minneapolis, includes one centrifugal refrigeration unit designed to handle 255 tons of refrigeration, four compressor units, 20 packaged air conditioners of varying capacities, and 13 "Monobloc" pumps.

Among the many prominent local and national chain stores in the new shopping center to be cooled by the Worthington equipment are: Powers Department Store, Sears Roebuck & Co., F. W. Woolworth, J. C. Penney, Walgreen Drug, Three Sisters, Harold Inc., Maurice R. Rothchild, Berlands Shoes, Kinney Shoes, Red Owl Supermarket, and Richmond Bros.

First Unit of New Marlo Plant Opens

ST. LOUIS—The first unit of a new plant which will eventually quadruple the facilities of Marlo Coil Co. began operation recently.

Located on a 23-acre tract in south St. Louis, the new 80,000-sq. ft. building utilizes the most modern equipment—much of it is specially designed—for the production of air conditioning and heat transfer products.

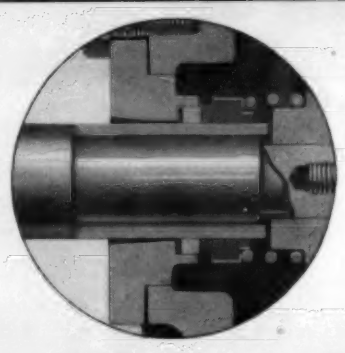
The remaining two units of the new plant are scheduled for completion within the next two years. The completed plant, which will cost $2,000,000, will be approximately 400 by 600 ft. in size, with an area of 260,000 sq. ft. It will be of one-story brick construction, and will be completely sprinklered.

Consulting engineer for the project is Brussel & Viterbo, St. Louis.

STOP HERE... FOR Plus Values
IN AIR CONDITIONING EQUIPMENT

EXTRA QUIET PUMPS

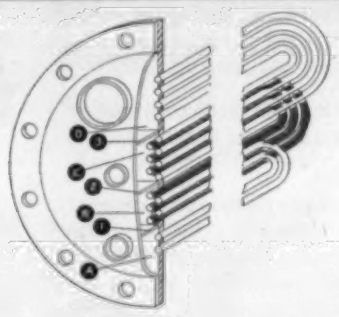
FEATURING WEAR-PROOF "REMITE" SEAL



B&G Series 1522 and 1531 Pumps offer an outstanding array of features for dependable, *quiet*, low-cost operation. The "Remite" Mechanical Seal, for example, ends leakage troubles. It's self-lubricating—*harder than glass*—wear-proof.

These pumps are machined to exacting specifications and carefully assembled under close inspection—in every detail designed to give long trouble-free service.

EVAPORATORS AND CONDENSERS



B & G SERIES "HR" EVAPORATOR

You'll find *plus value* in the unique design of this evaporator which prevents oil-trapping in the head passes. The lower tubes in each pass are located very close to the baffle plate, permitting any oil entering the passes to travel freely with the Freon vapor back to the compressor.

Other features include movable steel legs, for easy mounting. The shell connections extend well beyond the insulation cover—assure easy installation.

B & G CONDENSERS

B & G precision-built Condensers offer time-tested design—rugged construction—scrupulous workmanship—all combined to provide top performance over a long service life. These units are built to ASME Code U-69 regulations and are certified by Hartford Steam Boiler and Inspection Service.

☐ B & G Centrifugal Pumps
☐ B & G Evaporators
☐ B & G Condensers
☐ B & G Heat Exchangers

Check catalogs desired—write your name in margin and mail to us.

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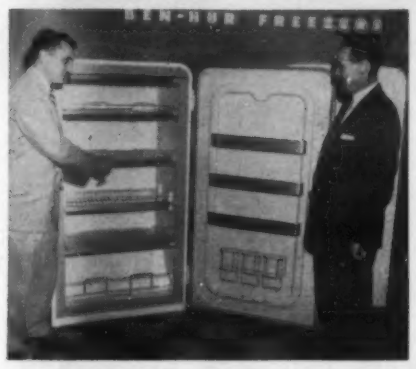
YOUR CUSTOMERS WILL
"Never have it so good"

EZ KLEEN WASHABLE AIR FILTERS

. . . and you, too. For washable, aluminum E Z Kleen air filters will reduce your inventory problems and service costs . . . fit perfectly into any filter service program. And your customers will benefit from the best in efficient air filtration, plus the economy of washable air filters. E Z Kleens retail as low as $1.33. Wide range of sizes ½", 1" and 2" thickness.

RP . . . PRODUCTS OF RESEARCH
RESEARCH PRODUCTS CORP.
Dept. 20, Madison, Wis.

New Factors In Refrigerator, Freezer Design Appear In 1955 Models



RALPH ZICKERT (l.), distribution manager for BEN-HUR MFG. CO., points out the adjustable interior shelf that is a feature of the company's new 14.2-cu. ft. upright freezer to Joe Tanner of Tanner Distributing Co., Chicago. This and other products in this group were on display at the Winter Marts.

POINTING OUT THE "Glow-Larm" indicator light in the name plate of the 1955 model "Pak-A-Way" freezer is J. Reynolds Carey (l.), sales manager for the PAK-A-WAY DIV. of SCHAEFER, INC. Robert M. Bourgette, western divisional manager, looks on.

THE FREEZER COMPARTMENT's in the middle in this 11-cu. ft. Gibson "Strat-A-Zone" refrigerator exhibited by GIBSON REFRIGERATOR CO. Henry Hoffmann, Chicago branch manager, points out the two-system box sells for less than $400.

EXAMINING THE NEW 19-cu. ft. freezer VICTOR PRODUCTS CORP. has introduced as a counterpart to its pedal-operated box is William Goldy, general manager of Olympic of southern California.

Nov., Dec. Appliance Sales Best of Year In Phoenix Area

PHOENIX, Ariz. — Appliance sales in the Phoenix area during 1954 started slowly but finished in a blaze of glory with December being the best month of the year, the Appliance Merchandisers Association reported recently.

The central Arizona dealers chalked up a $15,588,410 volume for the year, December volume hit $1,990,650 for 12.8% of the year's sales. Low month was February when volume was $898,985 or 5.8% of the year's total.

Monthly dollar volume and monthly percentage of total dollar volume was as follows:

By	Total Dollar Volume Month	% of Total Dollar Volume
January	$ 1,018,635	6.5
February	898,985	5.8
March	1,058,610	6.8
April	1,332,025	8.5
May	1,246,615	8.0
June	1,204,095	7.7
Total First Half	**$ 6,758,965**	**43.3**
July	1,331,150	8.5
August	1,341,515	8.6
September	1,234,150	8.0
October	1,335,600	8.6
November	1,596,380	10.2
December	1,990,650	12.8
Total Second Half	**$ 8,829,445**	**56.7**
Total Dollar Volume	**$15,588,410**	

Norge Names O'Sullivan Eastern Div. Sales Head

CHICAGO — Appointment of Frank D. O'Sullivan as eastern division sales manager of Norge, a subsidiary of Borg-Warner Corp., was announced recently by Harold Bull, who is director of distribution.

Formerly a district representative, O'Sullivan will be responsible for sales of Norge appliances in New England, New York, New Jersey, Delaware, Pennsylvania, Maryland, and the District of Columbia.

He will headquarter in Philadelphia, and supervise and coordinate the activity of six Norge regional managers.

For five years O'Sullivan was a regional sales manager for Crosley Div. of Avco Mfg. Co. Before that he was advertising and sales promotion manager and district manager of Crosley Distributing Corp. in New York City.

Philco Names McLean, Lagore Vice Presidents

PHILADELPHIA—Appointment of Joseph A. Lagore as vice president-manufacturing and James D. McLean as vice president-sales of the Government and Industrial Div. was announced recently by James H. Carmine, president of Philco Corp.

For the past three years, Lagore has been general manager in charge of operations of the Government and Industrial Div. McLean has been general sales manager of that division since 1949.

Lagore joined Philco in 1928 as a tester on the radio production lines and soon became supervisor of the testing group. In 1935, he was named department head of auto radio production. The first factory engineering and quality control department at Philco was organized by Lagore in 1940.

McLean joined Philco in 1947 as commercial manager for Philco's television broadcasting station, WPTZ, in Philadelphia. In 1949, he was named general sales manager of the Government and Industrial Div. with responsibility for merchandising activities in connection with research and development.

St. Louis Bank To Finance Installation On Some Appliances

ST. LOUIS—Boatmens National Bank here is offering to finance installation costs for customers purchasing certain appliances, including air conditioners.

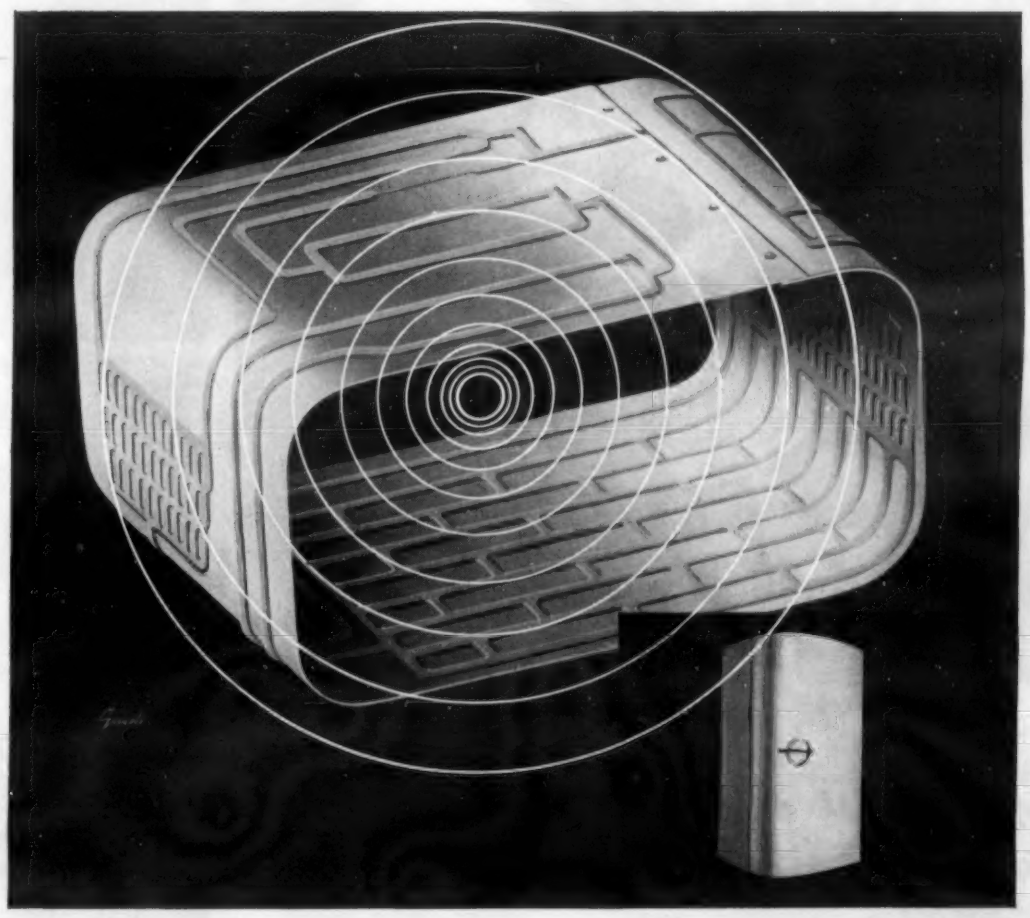
Cost of wiring and gas lines can be included under the plan, according to Paul H. Young, vice president in charge of the bank's consumer credit division.

The bank will accept up to $100 in wiring and gas piping costs, with maximum extension of 36 months. The buyer must own the home in which installation is made to use the plan.

WESTERN Roll-Bond

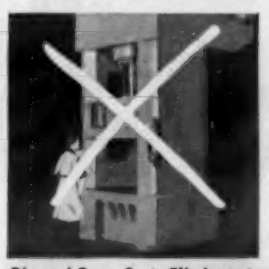
EVAPORATORS...

proved in over 300,000 homes!



Complete Flexibility. Any pattern of tubing—any manufacturing design that can be drawn on paper — can now be produced simply and easily *inside* perfectly bonded metal sheets. Dimensions of tubing can be fixed as desired.

Automatically Leakproof. Pattern channels must be leakproof or the Roll-Bond sheet cannot be made. Production mechanics prevent a leaking sheet from reaching completion. Western Roll-Bond *guarantees* no leaks!



Die and Press Costs Eliminated. A complete redesign of any tubing pattern costs less than $50, not $50,000 — is completed in days, not months. Traditional ideas of manufacturing costs are shattered completely.

with Western Roll-Bond...any product using the heat exchanger principle can be made faster, more efficiently and at a substantial saving

Now—right now—refrigerators containing evaporators made of Western Roll-Bond aluminum are bringing more efficient refrigeration to thousands of homes across the country—and have captured the imagination of refrigeration design men everywhere. Even as you read this, one of the major manufacturers of refrigeration equipment is designing his entire 1956 line around the advantages offered by roll-bonded metal—many others are proving to themselves by exhaustive tests that Roll-Bond evaporators excel any other evaporator on the market.

Take your own first step into a whole new era of refrigeration—start thinking and planning in terms of better, less expensive heat exchangers made of Western roll-bonded sheets. Press and die costs are eliminated *automatically*. Leaks are impossible. You can forget voids and frost blisters forever. Your engineers can now count on heat transfer characteristics equal to the metal itself because heat never has to go through low conductivity welds.

Call or write Western Metals. Ask for the complete technical information on Western Roll-Bond metals in the brochure, "A Pattern for Your Future." Or send us the plans or problems you have on your new products. Western-Roll-Bond can help you advance into a new technological age—*in weeks!*

Free! Actual Sample of Western Roll-Bond Process Metal

Management, Engineering and Production men frequently ask for an actual piece of Western Roll-Bond Process Metal. Western Metals will be happy to supply samples on request. Write to Roll-Bond Process, Western Brass, Dept. H, East Alton, Ill.

WESTERN Roll-Bond
a product of metals division

OLIN MATHIESON CHEMICAL CORPORATION

Plants • East Alton, Ill.—New Haven, Conn.

Air Conditioning Gets Spotlight at Philadelphia Show

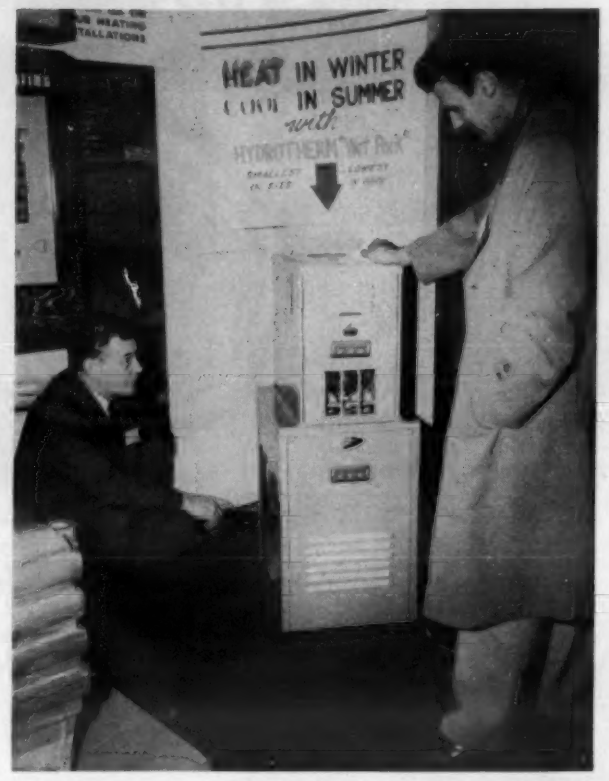
On this spread and pages 17, 22, 23, 24, and 31 is photographic coverage of the recent Heating & Ventilating Show.

More pictures from the Philadelphia Show will be published in a future issue of the NEWS. For further information on products pictured here, please use key numbers and "Information Center" form on page 25.

specify Servel
SUPERMETIC POWER UNITS FOR HIGH, MEDIUM OR LOW TEMPERATURE REFRIGERATION AND AIR CONDITIONING APPLICATIONS.

SITTING PRETTY between SERVEL, INC.'s new 1½-hp. twin cylinder "Supermetic" power unit and ¾-hp. single-cylinder unit is Eleanora Herling, designated "Miss RACCA" during the show. Both units are designed for "Freon-22." Servel showed Supermetic power units ranging from ¼ to 7½ hp. designed for high, medium, or low temperature applications in both refrigeration and air conditioning. All moving parts are constantly lubricated by a forced-feed oiling system while "Freon" vapor drawn around the motor windings aids in dissipating internal heat.
—KEY NO. E-2142—

ADJUSTABLE "AGITAIR" circular diffuser with four hidden vanes that can be set to divert the air as desired was new at the AIR DEVICES, INC. booth. Demonstrating the unit are Tom A. Hughes (l.), sales promotion manager, and Charles Filey, New York City representative. KEY NO. E-2117.

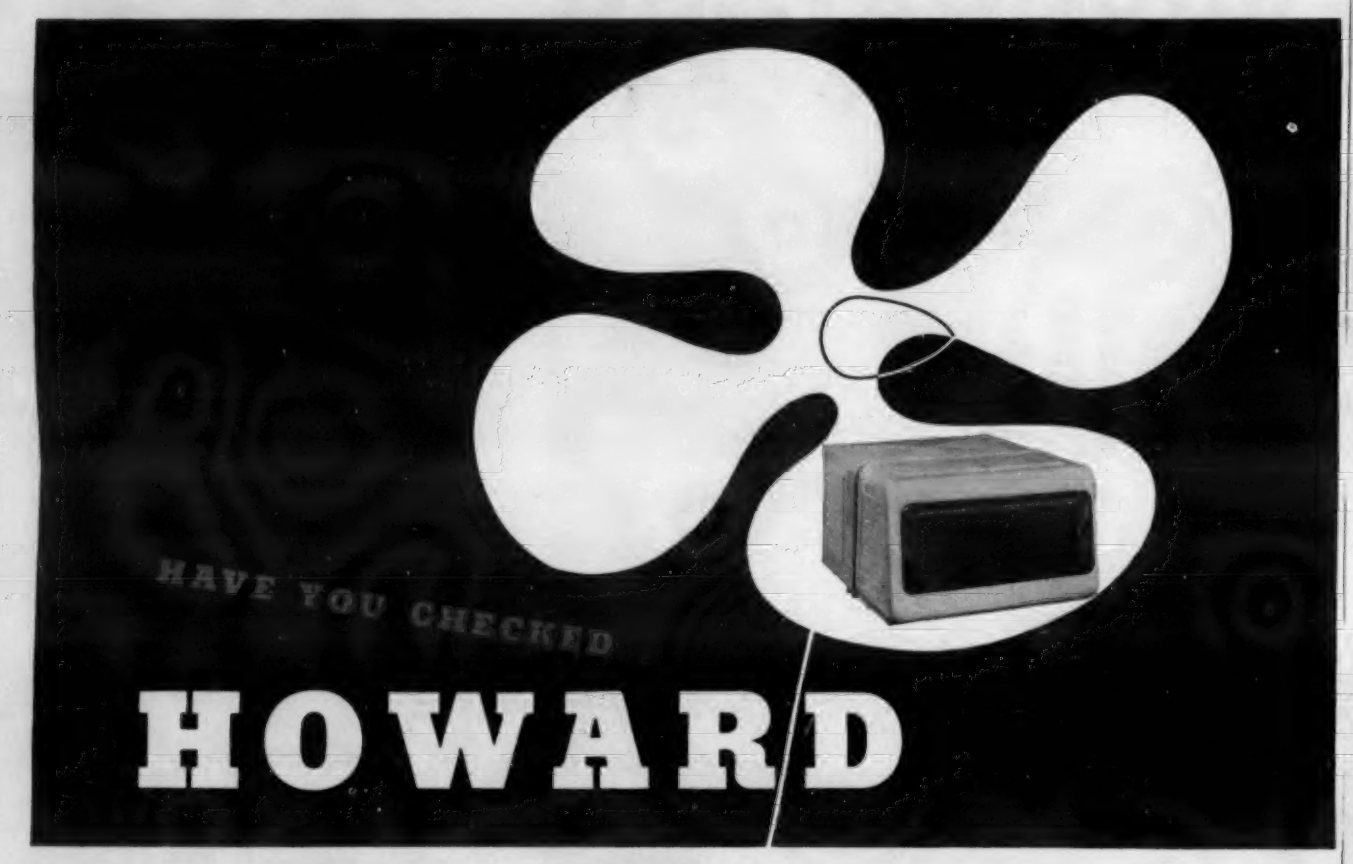


HYDROTHERM "WET PACKAGE" unit with a heating capacity of 72,000 B.t.u., and a cooling capacity of 3 hp. is explained by George L. A. Day, assistant sales manager of HYDROTHERM, INC. (l.), to A. Joseph Koeppel of Atlantic Highlands, N. J.
—KEY NO. E-2118—

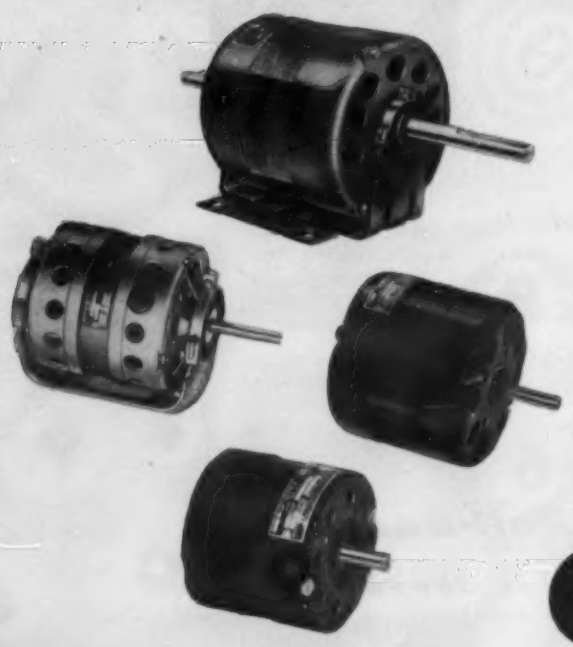
FOR BUILT-IN INSTALLATIONS in new construction, FRESH ND-AIRE DIV. of Cory Corp. exhibited its new "In the Wall" pushbutton air conditioner. H. Hartmann, Fresh'nd-Aire general manager, points out the features to William Sturgis of Salisbury, Md.
—KEY NO. E-2119—

LINEUP OF FRIGIDAIRE air conditioning systems for residential applications are (l. to r. by units) the AC-V 3-ton add-on unit, AC-V 2-ton add-on unit, and the year-round complete home package system. Looking them over are G. B. Deering, Wilbur Driver Co., Newark; and R. S. McCool, Frigidaire. KEY NO. E-2120.

POINTING OUT THE WATER TURBINE drive on the KENNARD CORP. model QT-5 cooling tower is Robert Carvell, assistant sales manager of Kennard (l.). Listening is Robert Greenwald of Toledo.
—KEY NO. E-2121—



FOR YOUR AIR-CONDITIONING AND FAN DUTY APPLICATIONS?



Howard's slogan "You can tell a motor by the company it keeps" certainly holds good for the air-conditioning field. You'll find Howard fractional h.p. Shaded Pole and Induction Motors in many of the leading room air-conditioners, window fans and space heaters.

If you have a quantity application, you will find it well worth your while to check with Howard for fractional h.p. motors and blower units today.

Universal and Direct Current Motors—1/1000 to 1/2 h.p.

Shaded Pole Motors—1/2000 to 1/8 h.p.

Induction Motors—1/1400 to 1/4 h.p.

Dynamotors • Gear Motors • Blowers

Used in more than 85,000 applications over the past 20 years

HOWARD

DEPT. AC-2• HOWARD INDUSTRIES, INC. • RACINE, WIS.

SALES OFFICES: 208 S. La Salle St., Chicago 4 • 942 S. La Brea Ave., Los Angeles 36 • Room 4822, Empire State Bldg., New York 1

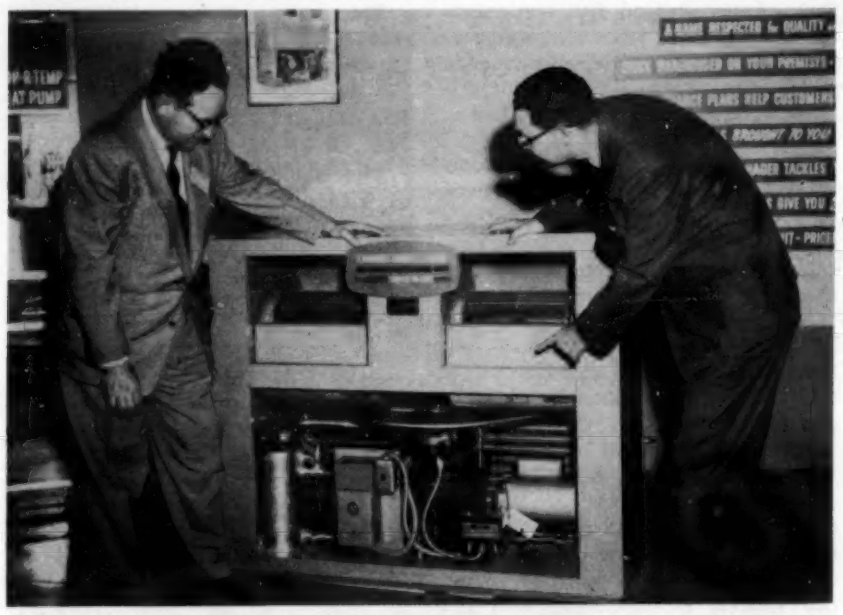
DIVISIONS EMC ELECTRIC MOTOR CORPORATION CYCLOHM MOTOR CORPORATION RACINE ELECTRIC PRODUCTS

COUNTERFLOW MODEL of year-round air conditioner was shown by the CRANE CO. Here Jerry Mealey points to sign indicating compact construction of the unit. KEY NO. E-2122.

"ROTONAMIC" IS THE NAME OF A NEW AIR CLEANING device being introduced by the FARR CO. and demonstrated here by H. Robson. The Rotonamic applies the principle of dual cyclonic action; this action separates solid particles from the air by centrifugal force in a two-way high velocity air stream. The centrifugal dust particles are then said to perform a continuous scouring action of the internal components—in effect a self-cleaning action.

——KEY NO. E-2126——

COMPLETELY REDESIGNED individual room heating and cooling unit for multi-room buildings and featuring a four-row water coil was displayed by UNITED STATES AIR CONDITIONING CO. Eleanora Herling, "Miss RACCA," tinkers with the controls. KEY NO. E-2127.



"CONVERT-TO-COOL" ADD-ON UNIT for year-round residential air conditioning is this 5-hp. model shown by TYPHOON AIR CONDITIONING, and being looked over here by Abe Gruber of Abe Gruber Co., Inc., Elizabeth, N. J., and Mel Klingler of Typhoon.

——KEY NO. E-2123——

"AQUA-FOG" EVAPORATIVE CONDENSER with self-cleaning turbulator rather than spray nozzles was exhibited by COBELL INDUSTRIES, INC. Shown with the unit are Luther D. Prescott, Cobell president (l.), and A. W. Rexroad, his assistant. KEY NO. E-2124.

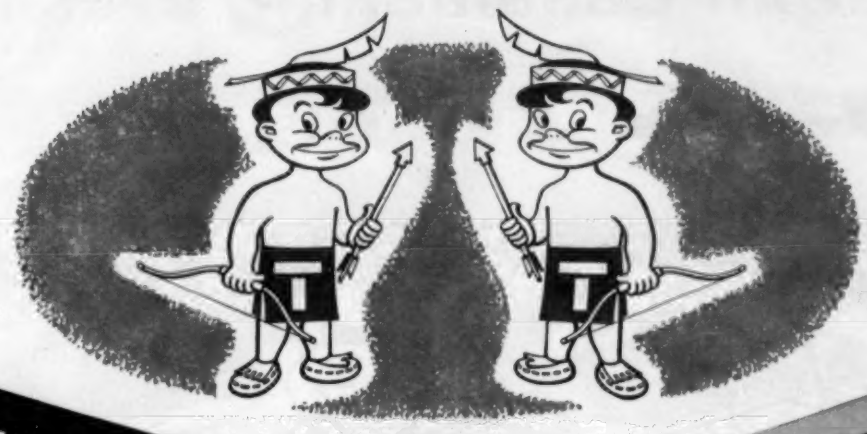
NEW "UNARCO DUAL-VECTOR" that provides hot water heating and chilled water cooling is explained by Chester Stackpole, manager of the refrigeration division, UNION ASBESTOS & RUBBER CO., to model Pat Bonner. The unit offers individual room temperature and humidity control.

——KEY NO. E-2125——

FOR LARGER AIR COOLED APPLICATIONS

A BRAND NEW

TECUMSEH TWIN



IDEAL FOR FURNACE UNITS

BEST FOR LARGE ROOM COOLERS

GREATER CAPACITY

IMPORTANT COST SAVINGS

TECUMSEH'S NEW 1½ H. P. AIR COOLED COMPRESSOR

HAS SAME COMPACT BASIC DESIGN as the 1 h.p. model, and is adaptable to most cabinets. It is slightly higher, but the width and mounting dimensions are the same. Start and run capacitors are bulkhead mounted, remote from the compressor.

CUTS COST ON FURNACE APPLICATIONS. Air cooling requires no water or drain connections. Faster, easier installations. Especially adaptable for less expensive applications in year-round systems.

BROADENS YEAR-ROUND MARKET. Designed into a system, this new compressor will help broaden the year-round market by providing more economical central cooling for low-cost housing.

ELIMINATES WATER SHORTAGE PROBLEM. Fully air cooled. Delivers rated output without the use of water.

INCREASES ROOM COOLER MARKET. Gives the designer an economical compressor for large room coolers. Fits either console or window type.

YOUR TECUMSEH REPRESENTATIVE is ready to show you how this Model B32P16 will help you meet design, engineering and cost problems on 1½ h.p. applications. Write today for his name and address.

TECUMSEH

TECUMSEH PRODUCTS • LEADERSHIP WITH FORESIGHT

TECUMSEH, MICH. Company

The World's Largest Producer of Compressors for the Refrigeration Industry

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23 Cities Will See It

'Live' Demonstrations Featured In New Penn 'Controlorama'

GOSHEN, Ind.—"Controlorama," the all-new educational show developed by Penn Controls, Inc. for heating, air conditioning, and refrigeration engineers and servicemen, will tour 23 central U. S. cities starting Feb. 28 in Little Rock, Ark., and ending April 20 in Grand Rapids, Mich.

R. H. Luscombe, general sales manager, said Controlorama audiences will see "live" demonstrator operating systems showing residential heating, air conditioning, and refrigeration systems in simulated operation.

In addition, wide screen color projection will be used to supplement animated charts and giant operating controls.

Another feature will also be added for the first time, Luscombe said. In the past, a heating show was conducted one night, followed by a cooling show the next evening. This year, the shows have been combined for presentation at one time.

To make this possible, Luscombe announced a new starting time of 5:30 p.m. He said this would enable servicemen to attend immediately after working hours.

Luscombe urged all trade people to come "just as they are," directly from work, adding that arrangements have been made to serve the audience a free buffet dinner at the hotel. Refreshments after the show will also be provided, he said.

The new starting time will allow the addition of an often-requested service roundup and question-answer session to the program.

Controlorama will be sponsored in each city by leading wholesalers who will issue special invitations to all trade people in the area, Luscombe pointed out.

The Controlorama schedule includes the following cities:

Little Rock, Ark, Feb. 28; Shreveport, La., March 2; Houston, Texas, March 4; Corpus Christi, Texas, March 7; San Antonio, March 9; Austin, Texas, March 11; Dallas, March 14; Fort Worth, March 15; Amarillo, Texas, March 17.

Oklahoma City, March 21; Tulsa, Okla., March 23; Springfield, Mo., March 25; Wichita, Kan., March 28; Kansas City, Mo., March 30; St. Louis, April 1; Evansville, Ind., April 4.

Cincinnati, April 6; Dayton, April 7; Columbus, Ohio, April 11; Toledo, April 13; Detroit, April 14; Jackson, Mich., April 18; Grand Rapids, Mich., April 20.

G. T. Etheridge To Head Kelvinator Automotive Air Conditioning

DETROIT — A new top-level executive appointment to direct American Motors Corp.'s growing automotive air conditioning operations was announced recently by B. A. Chapman, vice president and general manager of the Kelvinator Div.

G. T. Etheridge

Chapman said G. T. Etheridge has been named manager of automotive air conditioning, with responsibility for coordination of all Kelvinator research, engineering, manufacturing, and sales activities in this field.

Kelvinator helped engineer the air conditioning equipment already produced for the corporation's Nash Motors Div. cars during 1954. The compact Nash 1954 air conditioning assembly was available as an optional accessory at $395 on "Ambassador" and "Statesman" models, and $345 on "Rambler" models.

Chapman said the new Kelvinator automotive air conditioning operation has been organized to further improve and reduce costs on present designs, and explore other avenues of product development.

A graduate of the Carnegie Institute of Technology, Etheridge has had more than 20 years' experience in engineering, sales, and special applications of refrigeration products.

After two years' retail and wholesale selling experience, Etheridge entered the appliance field as a retail salesman in Pittsburgh in 1934. He was an appliance dealer for four years, before joining Kelvinator's commercial refrigeration products sales staff in 1941.

After a number of field and factory headquarters staff assignments, he was named sales manager, defense products, in 1951. He has been western regional manager, in charge of Kelvinator's field sales organization in the central and western United States, since 1952.

Carrier Acquires Full Ownership of Cambridge Corp., Plans Expansion

SYRACUSE, N. Y. — Carrier Corp. has acquired full ownership of Cambridge Corp., an engineering and manufacturing concern which was previously owned jointly by Carrier and Arthur D. Little, Inc.

The announcement by Cloud Wampler, president and chairman of Carrier, also declared that an expansion of activities into new engineering and manufacturing fields will be immediately undertaken by Cambridge. Previously its major field of activities has been in the areas of extremely low temperature equipment, or cryogenics.

As part of the expansion, Cambridge is currently moving its operations from Cambridge, Mass., to a new plant and office site in Lowell, Mass. The new plant was constructed in cooperation with the Lowell Development and Industrial Commission.

Cambridge Corp. was formed in 1950, originally to manufacture and sell an absolute air filter developed for the Atomic Energy Commission. Since that time it has concentrated in extremely low temperature equipment for gas refrigeration and transport, helium refrigeration, and air and gas filtration.

John W. Logan who joined Cambridge a year ago as president after 22 years with General Electric Co. will continue in that post. Wampler will serve as chairman of the board of directors.

Other board members are Wayne McLaughlin, Melvin C. Holm, and Walter A. Grant of Carrier and John W. Logan, Roger S. Warner, Jr., and James D. Lightbody of Cambridge.

Officers of the corporation are: Logan, president and treasurer; Warner, Lightbody, and McLaughlin, vice presidents; David W. Jasper, secretary; James H. Greene, Jr., assistant secretary; William D. McCuin, assistant secretary and assistant treasurer; and James H. Loomis, comptroller.

Lennox Dealers To See New Lines at Four Regional Meetings

COLUMBUS, Ohio—More than 3,000 dealers and guests will attend four regional dealer meetings to be conducted by Lennox Furnace Co. during February, March, and April, it was announced recently by Robert D. Strickler, director of sales.

Main purpose of the meetings is to introduce new and improved lines of heating and cooling equipment and to acquaint the dealers with the latest developments in year-round air conditioning.

The sessions will also cover a review of the company's service and sales policies, including its broad advertising and merchandising programs.

Lennox will play host for two-day dealer sessions at its Marshalltown, Iowa, Columbus, Ohio, Syracuse, N. Y., and Toronto, Canada plants.

The largest group will be received at Marshalltown, where three two-day sessions will be held for approximately 1,500 dealers and guests during the weeks of Feb. 28 and March 8.

The meeting in Columbus will be held on March 14-15, with approximately 1,000 persons expected. Some 400 dealers from eastern Canada will meet at the Toronto plant during mid-April; and 500 persons will attend the Syracuse meeting during the latter part of April.

Presiding at the product sessions will be John W. Norris, president of Lennox. Outlining the sales and advertising programs will be Strickler and the sales managers of each division.

The dealer meetings will mark the first time since the war that regional conferences have been conducted by Lennox. In recent years only the Marshalltown division has conducted similar meetings and on a much smaller scale.

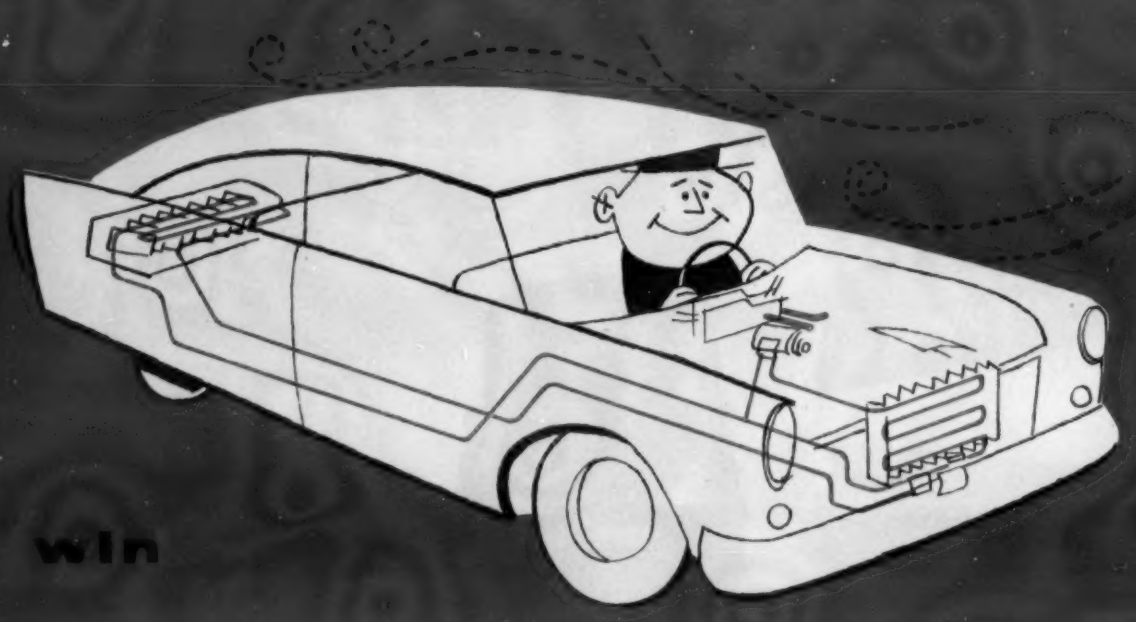
Air-Factors Completes Additional Factory Space

MONROVIA, Calif.—The management of Air-Factors, Inc. here, manufacturer of air distribution and air control products, has announced the recent completion of approximately 12,000 sq. ft. of factory space additional to and adjoining its plant at 1624 S. Raymond Ave.

The company originally occupied space at Mission and Broadway, Los Angeles, but by 1952 expanded business necessitated the purchase of office and factory buildings on the present site in Monrovia.

According to Sales Manager Frank McDonald, increased demand for the company's products during 1954 made the expansion of manufacturing area and facilities imperative.

Why
Car Air Conditioning Systems
made with H & H TUBE



win
in a BREEZE

Originators and Sole Makers of METALFLO Tubing

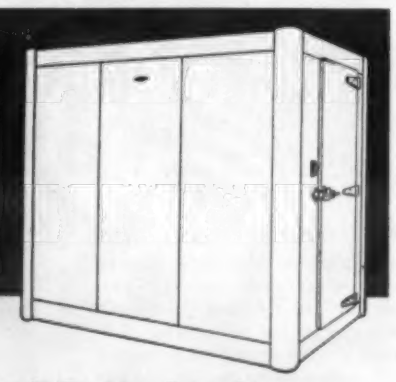
H & H Tube
AND MANUFACTURING COMPANY

Having spent almost a quarter century as a major supplier of tubing to air conditioning and refrigeration manufacturers of every type, H & H has the ability and the experience to make it an ideal tubing source for manufacturers of automotive air conditioning systems. The shock and stress to which automotive refrigeration tubing is exposed demands adherence to the closest specifications. Doing this has long been an H & H specialty.

271 N. Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast

METALFLO LOCASEAM COIL STRIP AND SEAMLESS TUBING TUBULAR PARTS

designed to do a better job



walk-in REFRIGERATOR with exclusive features

You and your customers will like this walk-in refrigerator. Easily erected sectional construction; 7'-8" high with full head room inside; full 5" insulation. Exclusive "Filter-Flo" coil prevents mixed odors, eliminates cold blasts and maintains high humidity. Highest quality at a price you can sell with good profits.

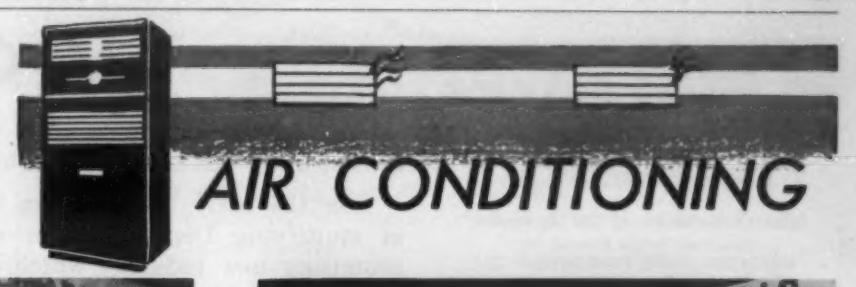
WRITE FOR DETAILED LITERATURE

85th Anniversary

The C. Schmidt Company
1712 John Street Cincinnati 14, Ohio

QUALITY THESCO SINCE 1870

Towers, Blowers, Units Displayed At Philadelphia Show



COOLING TOWER SUITABLE FOR INDOOR installation is this MARLEY "Aquatower" model, which is being discussed here by W. G. Cramer of Marley; C. F. Mowrey of Cincinnati; and W. V. McCoy of Marley. It has a simple venting arrangement and all of the indoor models are no more than 6 ft. high or 30 in. wide, so that they will go through a standard door.

——KEY NO. E-2111——

FOR COOLING OF 4 OR 5 ROOMS at low cost SHANA MFG. INC. here has introduced a 1½-ton air-cooled cooling unit, suitable for roof installation if desired, and equipped with a plenum so that the air supply can be diverted to day-time or night-time quarters. Shana executives Bud Schaffer (left) and Jack Miller (at right) help explain features to a customer.

——KEY NO. E-2112——

For further information on the products pictured here, please use the key numbers below each picture and the "Information Center" form on page 25.

COMPLETELY SEALED hermetic refrigeration cycle for packaged air conditioners is explained by A. W. Lewis, G-E manager of air conditioning sales (standing).

——KEY NO. E-2113——

"ECONOPAK" BLOWER SHOWN by LAU BLOWER CO. fits 95% of blower applications and cuts inventories 50%. W. J. Lohrey, Lau engineer (l.), tells Myer Sutton, chief engineer for Yates-American Co.

—KEY NO. E-2114—

"WATERLESS" CONDENSING UNIT in 7½-hp. size was among the new items in its board line for the air conditioning field shown by AIRTEMP DIV., CHRYSLER CORP. Posing with it here is Pam McMullin.

——KEY NO. E-2115——

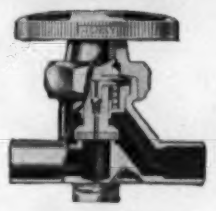
"FLOW-COLD" COOLING TOWER FOR 2-ton air conditioning applications, shown by ACME INDUSTRIES, INC., gains the attention here of W. H. Peters, E. Glenn Breeden, E. Shamburger, and R. Robert Carlton. The new 2-ton tower was among a wide variety of equipment for air conditioning installations shown by Acme.

——KEY NO. E-2116——

HENRY LINE VALVES really give you something extra

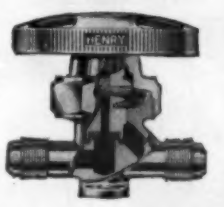
They give more dependable service because of advanced field-proven design and construction as well as patented features.

PACKLESS VALVES FOR FREON with Exclusive Balanced-Action



STANDARD TYPE

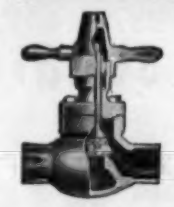
Ball check in balancing channel permits diaphragm inspection and replacement with valves under line pressure. Sizes, ¼" thru ⅝" flare; ¼" thru 1⅜" O.D. Solder, ¼" thru ½" F.P.T.



BLUE BANTAM TYPE

Same as standard Balanced-Action valve except that diaphragms cannot be inspected or replaced under line pressure. Size ¼" thru ⅝" flare and O.D. Solder.

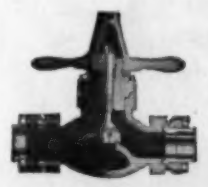
PACKED VALVES FOR FREON Bronze-Wing Cap Type



Globe and angle types with solder connections, bolted bonnets, sizes ⅞" thru 4⅛" O.D.

SEMI-STEEL WING CAP TYPE

With bolted bonnets and square companion flanges. Furnished with brass tailpieces (O.D. Solder) 1⅜" thru 5⅛" or with steel tailpieces for welding to pipe, sizes 1¼" thru 5".



Also Globe and angle types with F.P.T. connections, sizes ½" thru 2".

PACKED VALVES FOR AMMONIA Permanent-Mold Iron and Semi-Steel

Compact and strong with self-aligning stem disc. Sizes (F.P.T.), screw bonnet: ¼" thru 1", bolted bonnet 1¼" thru 2"—with flange connections 1¼" thru 5".

HENRY—Standard equipment by leading Manufacturers, Army, Navy, Coast Guard and Maritime Commission • Stocked by Leading Jobbers

WRITE FOR CATALOGS

HENRY VALVE CO.

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FEBRUARY 7, 1955

Air Conditioning and the Shake-Out Period

Few American industries have been so promising—or so exasperating—as air conditioning.

In the early 1930's, when the whole world was in the grip of stultifying Depression, air conditioning was hailed as THE promising new industry which could reverse engulfing economic tides.

We of AIR CONDITIONING & REFRIGERATION NEWS believed that, fervently. And for almost 25 years we promoted air conditioning editorially with scant reward. All that time air conditioning was long on promise, but disappointingly short of fulfillment.

All of a sudden—two years ago—it "hit." Early hot spells sold out stocks of packaged air conditioners quickly, and left thousands of customers clamoring.

Whereupon nearly everybody and his brother Herman tried to "get into the act."

Manufacturers multiplied. Any national-selling organization could recruit retailers by the dozens with its nameplate room air conditioners. Furnace manufacturers suddenly awoke to the fact that all-year comfort no longer ranked with space-travel to the Moon and Mars as something they could file and forget.

And our publication, the pioneer in this field, was confronted with scads of magazines which leaped to put those suddenly magic words, "air conditioning," into already complicated mastheads.

Result: confusion and overproduction. The year of Our Lord, 1954, could have been the sobering-up year. Too many bakers baked too many pies, and too many fingers were burned. An additional factor: hot weather was delayed.

The overhang of unsold 1954 air conditioners will plague everybody in the industry throughout 1955—*unless* there's a roaring hot spell early. Conservative estimates place the number of carry-over room units which must be warehoused until next spring at 500,000.

Warehousing is expensive. Likewise, tying up dealer's capital for nine months. Thousands of retailers who jumped aboard the room air conditioner bandwagon will shun it in 1955 as a result.

As this fledgling industry's proven and outstanding advocate, AIR CONDITIONING & REFRIGERATION NEWS continues to believe that air conditioning's future will be great.

At the same time, we are honestly happy that 1954 was a shake-out period.

Too many manufacturers and retailers crashed into the business without proper preparation. Their early demise will do us all good. We hope, along with most of our subscribers, that they will discourage easily.

You see, it's a precarious business. Depends on an *early* hot spell. If June is cool or wet, air conditioning prospects will delay purchases until next year.

Marketwise, air conditioning is complicated, has a too-short selling season, and requires a series of skills and technical knowledge which well-nigh unattainable by a great many local firms which jumped into the business.

As pioneers in this "game" we have learned, after a long period of trial-and-error, that a successful air conditioning dealer must be a *specialist*. To him, and for his success, we dedicate the editorial assistance of THE pioneering publication.

They'll Do It Every Time . . . . . Jimmy Hatlo

I DON'T HAVE TO TAKE HIS GUFF! THAT DID IT!! I'M GONNA GO IN BUSINESS FOR MYSELF! A MAN CAN STAND JUST SO MUCH-MUMBLE-MUMBLE..
THAT'S TELLING HIM, HENRY! ISN'T THIS THE TWENTIETH ANNIVERSARY OF YOUR THREATENING TO QUIT?
EVERY TIME TREMBLECHIN GETS BAWLED OUT HE MENTALLY RETIRES-- TOO BAD BIGDOME ISN'T A MIND READER...
IF HE WAS HIS OWN BOSS HE WOULDN'T HIRE A GUY LIKE HIMSELF!
HE'S NOT TOO SORE! NOTICE HOW NICE AND SOFT HE CLOSED THE DOOR...
J.R.BIGDOME
ONE IN EVERY OFFICE... AND HE STAYS THERE...
THANX AND A TIP OF THE HAT!! HAT TO HERB DE GRAFF, MT. ROYAL HOTEL, MONTREAL, QUE., CAN.
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Brunner makes only square pegs for square holes

. . . and round pegs for round holes, too! Brunner's wide range of refrigeration equipment makes it possible for your customers to have the right type and size of units for their specific refrigeration requirements. They don't need to settle for something that's either too large or too small for the job.

You can sell Brunner with full confidence that your customers are getting the *right* unit for the *right* job . . . the most dependable refrigeration that money can buy.

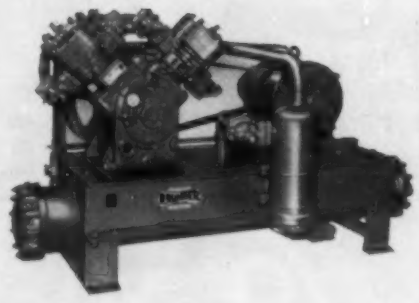
"BRUNNER" MEANS BIGGER PROFITS FOR YOU

The completeness of the Brunner line opens the door to bigger profits for you. There are Brunner Refrigeration Condensing Units for every commercial and industrial application . . . big or small.

They're noted for dependability . . . durability . . . easy installation and maintenance . . . and they cost less to operate than many other units of similar capacities.

See your Brunner Representative, or write to:

BRUNNER MANUFACTURING COMPANY
Dept. A-215, Utica, N.Y.
The Brunner Co., Gainesville, Ga.
In Canada:
Brunner Corp. (Canada) Limited, Toronto, Ontario



BRUNNER CONDENSING UNITS

. . . range from 1/4 H.P. to 75 H.P. for high, medium, low and extremely low temperature work. They're easy to install . . . easy to service on the job!

BRUNNER SINCE 1906

BRUNNER EXTRAS
Compressor Experience
Product Research
Design Engineering
Wide Product Range
Proven Quality
Complete Dependability
Easy Servicing
Warranted Performance
Nearby Distributor Service
Profit Opportunity
Advertising Support
Sales Promotion Help

Apartado 90
Managua, Nicaragua

Editor:

Received today your interesting as usual, Nov. 22, 1954, issue with page 19 story on Latin American building, "described as the first chilled water system to be installed in Latin America" in the Andian National Corp. building, Cartagena, Colombia.

We don't doubt your informer is perhaps overly zealous or underly informed beyond his own horizons.

We at Ernest Burguieres y Cia. Ltda., Engineers, Managua, Nicaragua, have completed during 1954 among other representative jobs the installation of a 75-ton Carrier chilled water system using the new Carrier 5H-120 compressor in conjunction with 63 36L-type fan-coil units, and the Carrier 9E-11 evaporative condenser.

This system is installed in the recently occupied new United States Embassy building; extremely modern, situated on a commanding volcanic rim overlooking the city of Managua, and the mountain-circled lakes. The United States Ambassador, Hon. Thomas E. Wheelan, has been among our largest boosters, because of the real engineering and refrigeration service and facilities we hope to continue rendering to him and to others in this progressive country.

ERNEST BURGUIERES, JR.

20th Century Construction Co., Inc.
Haddonfield, N. J.

Editor:

Your lead editorial of Dec. 20, 1954, should be reprinted and delivered each day to each air conditioning executive.

As an active home builder, every major company has practically said that if you use our brand of equipment all your problems of sales will be over. This is so far from the truth, that it is laughable.

In some of my talks (which have been reported in your journal), I have tried in vain to make the point that in most of their predictions, the wish has been the father of the thought.

Please keep repeating your thinking—it is clear, intelligent, and honest—all qualities that we can use in larger doses.

HAROLD D. SARSHIK

Paragon Electric Co.
Two Rivers, Wis.

Editor:

Many thanks for the kind treatment of my article on *Time Controls For the Refrigeration Industry*. Your fine editorial job certainly made the article more readable and interesting to your subscribers.

Thanks a lot for your cooperation.

TOM MORRISON

The MIAMI STORY

Contractor Helps Small Store Compete with Chains

By George M. Hanning

HIALEAH, Fla.—Southland Market is only a small corner store in a residential neighborhood of this Miami suburb, but with the help of modern refrigerated, self-service fixtures and air conditioning, it offers its patrons all the advantages they can find in a large supermarket.

Jack Stoltz, a successful grocer in Detroit before he came here two years ago, opened his market only a short time ago with that definite purpose in mind.

He has ringed his 40 by 40-ft. selling area with 82 ft. of refrigerated fixtures, and has provided air conditioning through a Brunner 7½-hp. packaged unit installed in a rear corner of the store. The air conditioner is air cooled through a 10-hp. RC-10 Unicon condenser mounted on the roof of the one-story building.

Along one side wall he has a Hill 11-ft. frozen food case, 11-ft. refrigerated produce case, and 11-ft. non-refrigerated produce case.

Across the rear, he has installed 22 ft. of delicatessen cases, and a 10-ft. service type meat case.

Along the other side wall are lined a Hill 10-ft. dairy case, a Schaefer 8-ft. ice cream cabinet, and a Bally 10-ft. meat case. All are self-service fixtures except the Hill meat case.

Stoltz uses the Bally open-type meat case to sell chilled beer by the bottle, carton, or case. Set right at the front of the store, this has been a great sales booster, Stoltz said. He attributes this to the psychological effect on the patron of seeing ice cold beer ready at hand. It also pulls many customers who come in just for beer.

SELLING SPACE IS LIMITED in Southland Market in Hialeah, Fla., but Grocer Jack Stoltz uses every inch to good advantage. Down one side are lined three 11-ft. vegetable and frozen food cases and a 7½-ton air conditioner.

Though his selling space is limited, Stoltz has been careful not to try to save space by narrowing his aisles. He has kept the main aisle more than 6½ ft. wide and all others more than 5 ft. wide.

"In this way, I offer the customer the same mode of shopping she will find in the supermarket and all national brands to choose from. In addition, she gets the convenience of shopping any day of the week here," Stoltz said.

The store was completely laid out by Dudley Cawthon, Inc., Hill distributor in Miami. The firm sold and installed all of the new refrigeration and air conditioning equipment and dry grocery shelving.

The condensing units serving this equipment are installed in a room at the rear of the building, which is accessible from the parking lot, rather than from the interior of the store. This is a convenience both to Stoltz by conserving his very limited back room space and to the serviceman who works on the equipment, according to Robert Timmerman, sales engineer for Cawthon.

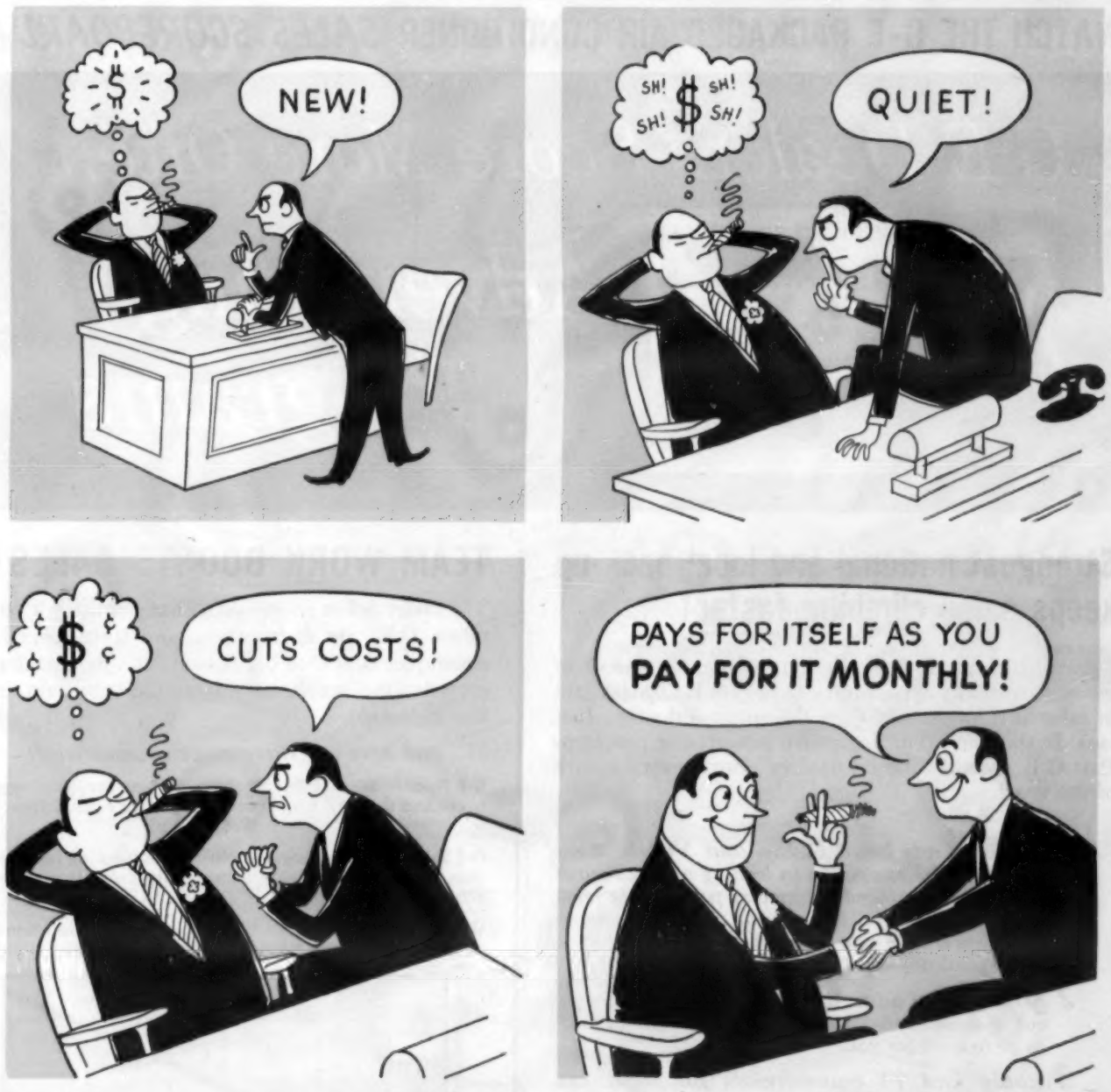
RIGHT: PERCHED ON THE ROOF of the market is a 10-hp. "Unicon" air-cooled condenser that serves the air conditioner. The complete refrigeration and air conditioning installation was made by Dudley Cawthon, Inc. of Miami.

The Miami area, one of America's "dream places" which nearly every American hopes to see at least once before he dies, has a sub-tropical climate which is part of its great attraction. That same climate also makes the Miami area one of the nation's greatest markets for refrigeration and air conditioning equipment. And despite the fact that it is primarily a vacation spot, it is one of the fastest-growing areas, population-wise, in the entire country.

What's it like to do business in the air conditioning and refrigeration field in that part of the country? Assistant Editor George M. Hanning, after spending several weeks in the Miami area, has written a series of articles on various phases of the business.

While the "super colossal" installations—of which there are many in Miami—make the headlines, there are still thousands of small businessmen to be served with refrigeration and air conditioning equipment. This is the story of how a refrigeration contractor is helping one small food market operator compete with his chain supermarket competitors.

LOOKING TOWARD THE AIR CONDITIONER from the opposite side of the store, one finds a wide aisle before the 22 ft. of self-service delicatessen case and 10 ft. of service meat case.



Hard selling takes time—

Time makes selling easy!

To clinch more sales in less time, quote a *monthly payment*, not a *total cash price*. Many of your prospects need their working capital and usual lines of credit for current operations. No matter how much they need your equipment, they probably won't sign your order *now* unless you show them a convenient, practical way to pay. That's the COMMERCIAL CREDIT PLAN way. When can we tell you our story? Phone our office in your city or write COMMERCIAL CREDIT CORP., 14 Light St., Baltimore 2, Maryland.

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USED ICE PLANT EQUIPMENT

2—Vilter Ammonia Compressors, duplex units, each unit consists of two eight-cylinder compressors direct connected to a 200 HP, 440 volt, 60 cycle electric motor.

1—Vilter Ammonia Compressor, duplex unit, consisting of two twelve-cylinder compressors direct connected to a 150 HP, 440 volt, 60 cycle electric motor.

2—30 ton Vilter Pacice machines.

1—36" dia. x 16' Vilter Ammonia Condenser with 2—36" dia. x 16' receivers, with stand.

1—36" dia. x 16' Vilter Ammonia Condenser with 1—36" dia. x 16' receiver, with stand.

1—General Electric motor control center.

UNITED CONSTRUCTION CO.
P. O. BOX 299 WINONA, MINNESOTA
Phone — Winona 5226

Extending Electric Service to New Air Conditioning Installations

Problems of Getting Line Extensions Built In Time for New Equipment, Three Ways To Reduce Delays Discussed by Utility

By John O. Sweet

DETROIT—"We are anxious to get line extensions built so that we do not delay air conditioning installations. We must be notified as soon as possible to avoid delays."

This point was stressed by Laurence J. Van Tuyl, general supervisor of inspection, Sales Dept., Detroit Edison Co., in discussing problems of extending electric service to air conditioning installations at a recent meeting of the Detroit Section, American Society of Refrigerating Engineers.

"This is the big problem: How can we get a line extension built by the time you have the equipment installed?" Van Tuyl told the group.

"It is necessary for you to consider the electrical problems of a new installation as soon as you get started.

Either you or the electrical contractor must notify us when a sale is made so as to give us the time we need to increase our equipment to serve the new load.

"Of course, a line extension is not necessary for every air conditioning installation so I would like to tell you what our limits are and about what you can expect.

"A. Residential installations.

"1. As far as residences are concerned, all residences have 120/240-volt, three-wire, single-phase service available with the exception of a few in our Y network area that are probably not interested in air conditioning anyway.

"2. Any residence can have a motor as large as 3 hp. if the motor is connected for 240 volts, single phase. A motor as large as 5 hp. usually can be handled in a residence in Detroit although it may cause voltage flicker. Therefore, it is necessary to check with the Detroit Edison Co. when installing a motor larger than 3 hp. in a residence.

"The installation of a 240-volt motor in a residence requires a special circuit back to the service equipment and may require rewiring of the service entrance equipment, also.

"3. Do not use a single-phase motor larger than 5 hp. Starting problems limit the usefulness of single-phase motors to 5 hp., Van Tuyl indicated.

"4. Three-phase service can sometimes be made available for residences. A three-phase motor in the 3-hp. size or larger is considerably cheaper than the corresponding single-phase motor. This cost saving can be balanced against the cost of rewiring the service entrance equipment.

"It is always necessary to install new entrance equipment when changing from single phase to three phase. The minimum monthly bill for three-phase residence service is $10.

"It is necessary for us to field check every request for three-phase residential service as it often is not available. Also, it requires about 30 days for us to build the necessary line extension.

Commercial Installations

"B. Commercial installations.

"For commercial installations, three-phase service can usually be made available although it may be necessary to rewire the service entrance equipment. The three-phase service is generally 120/240-volt, four-wire delta although our network area is 120/208 volt Y.

"Where a building is being served single phase, it will take us from 10 to 30 days to increase our equipment to make three-phase service available. Even when the building is being served three phase it may be necessary for us to increase our equipment to provide the additional capacity required.

"There is no $10 minimum Edison bill for three-phase commercial service.

"When the motor being installed is fairly large in comparison to the rest of the connected load in the building, a reduced voltage starter may be required to hold down the voltage flicker. The company rule book has a formula for determining this. The secondary inspection group should be consulted regarding this requirement. They can also give information on whether a line extension or rebuild will be necessary.

How To Reduce Delays

"C. What can be done to reduce delays in getting service to air conditioning installations?

"1. The first thing is to notify the Detroit Edison Co. as soon as a sale is made, or as soon as you know you are going ahead with the installation of air conditioning equipment. Every day that you delay in notifying us delays the date that we can have our work completed.

"This year, before the start of the air conditioning season, we discussed with the Overhead Lines Dept. all of the short cuts we could take to speed up handling the line extensions for these air conditioning installations. As a result, we increased the percentage that can be handled in 10 days.

"The ones that require considerable overhead line work still require 30 days. We are doing everything we can to speed up these jobs and ask, in return, that you give us as much notice as possible.

"2. The second thing that can be done . . . is to get your electrical contractor started on the job so that he can determine what wiring changes are necessary and whether the service entrance wiring is adequate. He will also know whether the building is wired for three phase.

"3. The third thing that will help to reduce delays is to see that the electrical contractor takes out his city permit. Local ordinances do not allow the Detroit Edison Co. to energize new service wiring until we have received permission from the city or township. Many delays are caused by the contractor neglecting this point.

Questions on Voltage

"D. Voltage.

"There are a number of questions that come up in connection with these installations and most of them have to do with voltage. First, what are our service voltages? . . .

"1. Service Voltages. As I mentioned before, there are different voltages at which we sell three-phase power.

"a. The most common system is the 240-volt, four-wire, delta system. This is the system that you will find on about 95% of our three services.

"b. The 120/208-volt Y system is used in what we call our network areas. . . .

"It is important for you to know when your equipment is to be served at 208 volts. The equipment manufacturer should be consulted to determine whether the standard 220-volt or 230-volt motors will operate satisfactorily on this voltage and whether 208-volt equipment is available.

"Another important thing is that the larger single-phase motors that are wired for 230 volts will have a maximum of 208 volts on this system. The manufacturer may recommend a 208-volt motor in this case also, instead of 230 volts."

Referring to a room air conditioner listing and the fact that many models are available in 208 volts as well as 230, Van Tuyl said: "We strongly recommend using 208-volt equipment in any building served from our 208-volt Y system."

He continued:

"c. Recently, the Detroit Edison Co. has started serving a few buildings at 277/480 volts Y connected. This system was designed for office buildings or installations with large fluorescent lighting loads. It is also being used by small industrial concerns.

"d. Our larger customers buy high-voltage power and furnish their own transformers. These plants choose their distribution voltage, so there is no uniformity. . . .

2. Voltage Range. The second question about voltage is how much will the voltage vary and how will this affect your equipment?

"a. Voltage range at the meter.

"The Detroit Edison Co. system is designed to maintain voltage at the meter between 112 volts and 120 volts. In some locations, we may run over the 120 volts at times. On a 240-volt system, this means a range of 224 volts to 240 volts. These figures are the range at the meter.

"b. Voltage drop in building wiring.

"For large installations, the National Electric Code recommends that the voltage drop in the building wiring should not exceed 5% for motor loads. Combining this with the lower limit at the meter gives us 112 less 5% or 106½ volts or, on a 240-volt system, 213 volts at the motor. Thus, we have a total range of 213 to 240 volts at the motor.

Motor Limits

"c. Motor Limits.

"Now, the question is what is the effect of the range of 213 to 240 volts on air conditioning equipment?

"Three-phase open-type squirrel-cage motors operate satisfactorily at plus or minus 10% of name plate voltage. This means a motor rated at 220 volts will operate satisfactorily between 242 and 198 volts.

"The higher voltage results in higher pull out torque, less amps, less heating, and lower power factor and efficiency. The lower range of voltages gives lower pull out torque, more heat, more amps, higher power factor, and efficiency.

"When an equipment manufacturer takes advantage of the fact that the voltage is usually higher than name plate and that he can cool the motor with the refrigerant, he is cutting down the voltage range in which the motor can operate. If the voltage is a little low, the machine will not operate where an ordinary motor would not be affected.

"Does this mean that the utility system and customer's wiring must be built to closer voltage limits? It would seem that if a manufacturer cuts down on the margins, then he can expect trouble in a certain number of cases.

"The same condition arises with an unbalance of voltage. Our 240-volt delta system usually has some difference in phase voltages. These

(Concluded on next page)

WATCH THE G-E PACKAGED AIR CONDITIONER *SALES SCOREBOARD!*

G-E Dealers Score More Often with **7** *Advertising Programs*

Strongest national and local back-up keeps sales climbing faster!

General Electric and its distributors make the most of *every* advertising opportunity to help G-E Dealers gain in sales at a faster rate than the entire industry. Just look at the line-up of aggressive advertising programs that G.E. puts behind its dealers' efforts every month of the year!

1 ***National ads build G.E.—and YOU!*** *Multi-million dollar campaigns in leading national magazines put the tremendous drawing power of the name "General Electric" behind you...local prospects know you are the man to see when they want the best in air conditioning!*

2 ***Strong local advertising.*** *A wealth of in-season, out-of-season and dealer announcement ads all ready to go to work for you.*

3 ***Radio and TV commercials for local use.*** *Hard-hitting spots that pack real sales punch in as little as 20 seconds! All ready to use.*

4 ***Local identification aids.*** *Decals, banners, signs and unique "use-the-user" device show prospects you are "Mr. G-E Air Conditioning" in your community.*

5 ***Packaged direct mail campaigns.*** *G.E. handles complete direct mail campaigns for you. And for other local mailings, G.E. provides you with a tremendous barrage of sell-packed pieces.*

6 ***Sales helps speed salesmen training.*** *Even an untrained man soon becomes a valuable part of your organization with G.E.'s sales helps and programs for selling specific markets. Saves you time and money!*

7 ***Telephone directory listings.*** *Another powerful tool that really tells prospects you're in business.*

TEAM WORK BOOSTS SALES!

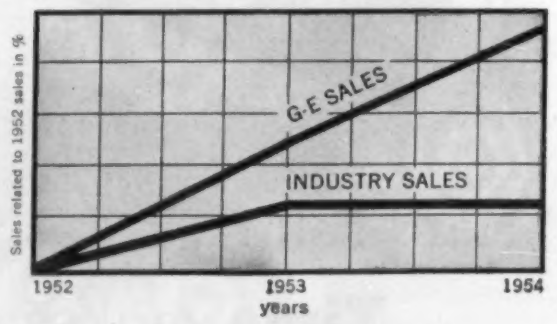
The chart below shows you what team work between G.E., its distributors, and its dealers is accomplishing. One big reason for this amazing growth: the strongest advertising program in the industry!

. . . and here are three more reasons why:

G-E Finance Plans: *Five* big finance plans for both prospects and dealers! Easy terms keep your capital free... make easier sales...keep profits high!

G-E Saleability: Dozens of exclusive engineering features plus an unmatched five-year warranty protecting entire refrigeration cycle!

G-E Multiple Sales: G-E dealers get large installations! All installations are handled by franchised distribution.



Get on the winning team now!

For full information
call your nearest G-E Distributor
or write: C. J. Rigby, General Electric Co.,
Commercial and Industrial Air Conditioning Dept.,
5 Lawrence St., Bloomfield, New Jersey.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Packaged AIR CONDITIONERS

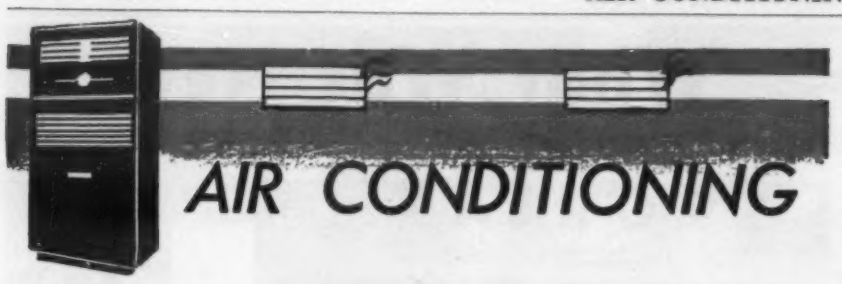
ASPIR-JET
SPRAY NOZZLES RAISE TOWER EFFICIENCY

The swirling, atomizing action of the water as it goes through the Aspir-Jet means more effective heat transfer and higher efficiency from any spray-filled cooling tower. Pressure as low as ½ pound gives effective water break-up and distribution. Formed of butyrate plastic, Aspir-Jets will not corrode.

• Available through Refrigeration and Air Conditioning Wholesalers.

Manufacturers & Refrigeration Wholesalers: if you are not now using or stocking this astounding new product, wire or write

THERMAL AGENCY
National Sales Agents
1515 DALLAS • HOUSTON, TEXAS



Utility Suggests How To Avoid Problems--

(Concluded from preceding page)

phase differences cause somewhat greater unbalance in the currents drawn by a motor.

"This is a recognized condition that causes no trouble, unless the motor is too closely designed for its load, so there is no margin of safety in the motor. This is what has happened on some air conditioning equipment.

"When a 220-volt motor is used on our 208-volt system, conditions must be favorable or the operation will not be satisfactory. In general, our 208-volt system is somewhat stiffer so at the meter we may not go below 197 volts.

"If the building wiring drops 5% below this we can expect 187 volts at the motor. This is below the voltage at which we can expect satisfactory operation of a 220-volt motor. We recommend a 208-volt motor to keep you out of trouble.

Voltage Flicker

"3. Voltage Flicker.

"In talking about voltage range, I have been discussing the variation of voltage between light load conditions and maximum load conditions; also, the variation in voltage between a location close to our substation and one at the end of the line.

"Now I want to discuss voltage variation caused by starting of motors. This is a short voltage drop or flicker caused by the extra current that a motor draws in starting. This current varies from five to seven times the full load current rating of the motor.

"Rather than to measure the current during the short time that the motor is starting, a measurement can be made under steady conditions by locking the rotor so it cannot turn and measuring the current that is drawn under these conditions. This current is known as 'Locked Rotor Current.'

"The flicker in voltage that is caused by a motor drawing locked rotor current is disturbing if it causes a blink in the lights and if it happens too often. Since it is disturbing, the Detroit Edison Co. has in its rule book a formula for determining the locked rotor current that can be allowed at any location. This formula takes into account the frequency of starting and the size of the customer's total connected load.

"The formula I mentioned covers three-phase motors and single-phase 230-volt motors. Single-phase 120-volt motors are a special problem. The reason they are special is that at the lower voltage, they draw twice the locker rotor current that is drawn by a 230-volt motor, thus they cause twice the voltage drop or four times the percentage voltage drop. Therefore, a 120-volt single-phase motor is four times as disturbing as a 230-volt single-phase motor of the same horsepower.

"The Detroit Edison rule book states that a 120-volt motor is allowed to have a locked rotor current of 40 amps when the motor is manually controlled. This rule is being changed to 46 amperes.

¾-Hp. Room Units Can Use 120 V.

"The list of room air conditioners to which I referred previously shows that the locked rotor current of all of the ¾-hp. room air conditioners is just below 46 amperes. Therefore, ¾-hp. room air conditioners, manually started, may be connected for 120 volts, according to the Detroit Edison Co.

"According to this same rule book, 120-volt motors automatically controlled are limited to 20 amperes locked rotor current, but this is being changed to 23 amperes. This limits the size of room air conditioners connected for 120 volts and automatically controlled to a few manufacturers' ⅓-hp. motors. Most ⅓-hp. units do not qualify.

National Electric Code

"In addition to the Detroit Edison Co. rules, the National Electric Code must be considered. There are some revisions of the code that are effective Jan. 1, 1955, that will affect these 120-volt room air conditioners.

"Article 4293 will read as follows: '1. The total load of motor operated air conditioning equipment shall not exceed 80% of the rating of a branch circuit which does not supply lighting units or other appliances.'

"This means that the 15-ampere branch circuit, which is the size commonly found in residences, can carry an air conditioning unit rated at 1,380 watts.

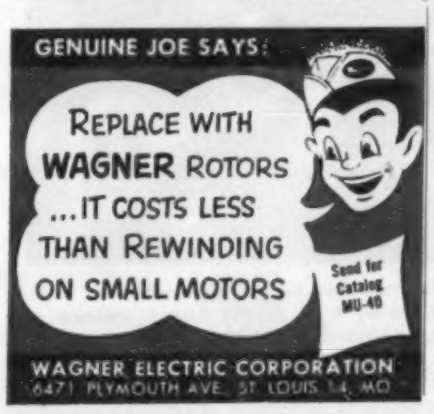
"According to this same list, this limits the unit, in general, to ½ hp. although a few ¾-hp. units can get by. Nothing else can be connected to the same branch circuit, so special wiring must usually be installed.

"The second part of Article 4293 as effective Jan. 1, is as follows: '2. The total load of air conditioning equipment shall not exceed 50% of the rating of a branch circuit if lighting units or other appliances are also supplied.'

"Fifty per cent of the rating of a 15-ampere branch circuit is 860 watts. Referring again to the list of room air conditioners, we find that most of the ⅓-hp. units will draw less than 860 watts, but these are the largest that should be sold to a customer as being satisfactory to be plugged into any convenience outlet without any special wiring.

"This is quite different from present practice of selling ¾-hp. units with a cord attached ready to be plugged in.

"If a special wiring job is going to be necessary, why not wire the equipment for 240 volts and cut the starting flicker to one fourth of what it is at 120 volts? The automatic controls can be safely applied."


GENUINE JOE SAYS:
REPLACE WITH WAGNER ROTORS ...IT COSTS LESS THAN REWINDING ON SMALL MOTORS
Send for Catalog MU-40
WAGNER ELECTRIC CORPORATION
6471 PLYMOUTH AVE., ST. LOUIS 14, MO

6 Builders Become Members Of Carrier's 'Century Club'

CHICAGO—Six prominent builders were awarded membership in the Carrier Century Club, an organization established for builders who have erected and sold 100 or more air conditioned homes, at the National Association of Home Builders convention here.

John M. Bickel, vice president of Carrier Corp., awarded plaques to Melvin H. Glick of St. Louis, Mel Schroeder of Las Vegas, Nev., Ben Okun of the New York City area, Donald K. Vanneman and Frank G. Ethridge of Atlanta, and Carr P. Collins of Dallas.

Yearkes, Campion Take L. A. Post for Carrier

SYRACUSE, N. Y.—William L. Yearkes has been named Los Angeles district manager for Carrier Corp.'s machinery and systems division, it was announced recently by Charles V. Fenn, vice president of the division.

Thomas S. Campion, former construction manager at the Los Angeles district office for the division, has been named San Francisco branch manager, Fenn also announced.

Yerkes' promotion coincides with advancement of the Los Angeles branch office, of which he was manager, to district office status.

Yerkes has been with Carrier for almost 20 years. His various assignments have taken the native Kentuckian up and down both coasts of the United States and to Europe and South Africa. He is a mechanical engineering graduate of Rensselaer Polytechnic Institute.

Campion replaces John F. Kooistra who has been transferred to Washington, D. C. to handle liaison activities between Carrier, the Navy Department, and the Maritime Commission.

The new branch manager was also active in marine air conditioning and refrigeration sales and service while serving under Kooistra in San Francisco for four years prior to undertaking the Los Angeles assignment.

Installed on a Weekend

Southwest's 'First Skyscraper' Cooled by 36 Packaged Units

WACO, Texas—When the 22-story Amicable Life building was opened in 1911, it was the southwest's first skyscraper and the entire town of Waco, Texas turned out for a mammoth street dinner to honor its new building.

The Amicable Life building again made news recently when its 110,000 sq. ft. of floor space was completely modernized and air conditioned with 270 tons of packaged equipment.

H. I. Kelly of Waco's Refrigeration Co. worked with Texas Distributors, Inc., General Electric air conditioning distributor of Dallas, to install 36 packaged air conditioners on 19 floors of the building.

Because packaged units were used in the modernization job, little alteration work had to be done to completely air condition the towering landmark.

To house the units, a steel and concrete platform was constructed on each floor in an unused freight elevator shaft. In this way the old elevator shaft serves as individual equipment rooms for the packaged units.

As part of the modernization job, green aluminum shades have been installed on all windows to deflect rays of the sun and reduce the heat load of the building.

According to the General Electric Co., one of the features of the installation which most pleased insurance company officials was the fact that the entire system was started, checked out, balanced, and put into operation over one weekend.

ASHAE Promotes Four of Research Staff

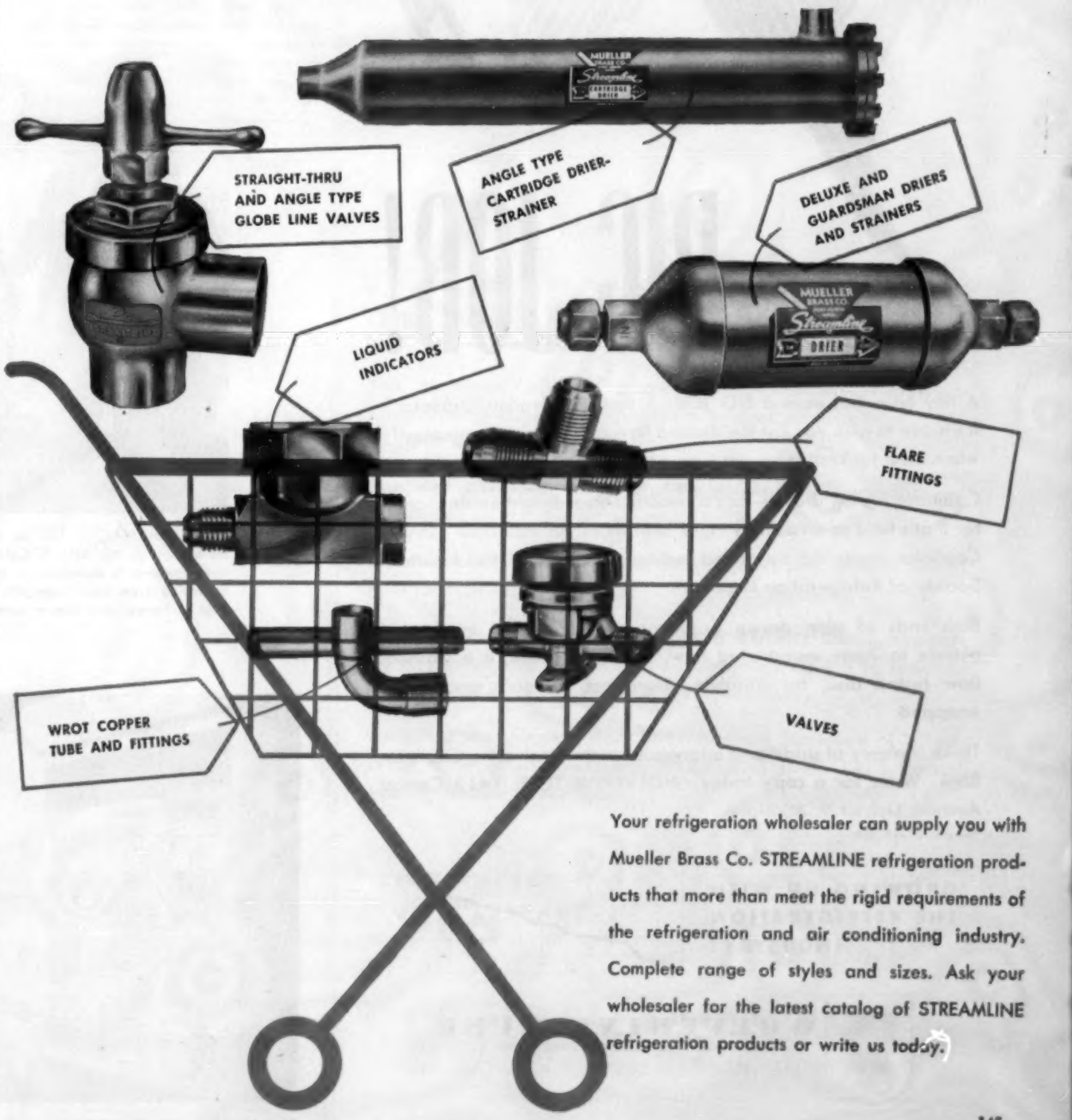
NEW YORK CITY — Chairman of the Committee on Research, Richard S. Dill, of the American Society of Heating & Air-Conditioning Engineers, has announced the promotion of Clark M. Humphreys, ASHAE Research Laboratory, Cleveland, to the position of assistant director of research.

Three other members of the laboratory staff have also been promoted, including George V. Parmelee, from research associate to senior research supervisor, and Lester F. Schutrum and Richard G. Huebscher, from research engineers to research supervisors, the announcement said.

ONE STOP SHOPPING

FOR ALL REFRIGERATION PRODUCTS

MUELLER BRASS CO. MANUFACTURES A COMPLETE LINE OF VALVES, DRIERS, FITTINGS AND ACCESSORIES FOR EVERY NEW COMMERCIAL INSTALLATION AND EVERY REPLACEMENT NEED . . .



Your refrigeration wholesaler can supply you with Mueller Brass Co. STREAMLINE refrigeration products that more than meet the rigid requirements of the refrigeration and air conditioning industry. Complete range of styles and sizes. Ask your wholesaler for the latest catalog of STREAMLINE refrigeration products or write us today.

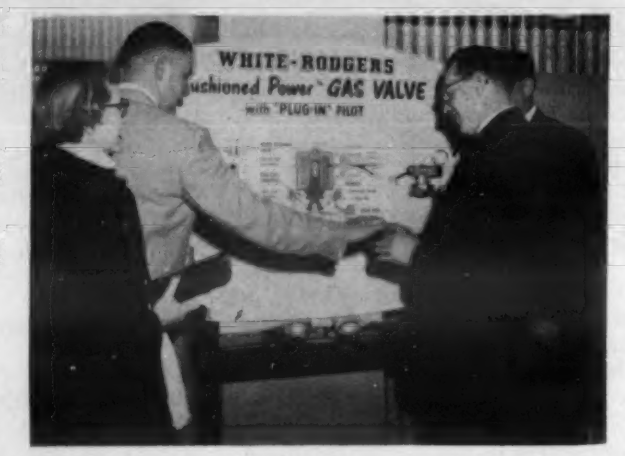
145

MUELLER BRASS CO. PORT HURON 9, MICHIGAN

What Was New AT PHILADELPHIA SHOW

INTRODUCING THE WESTINGHOUSE "SU-32" Unitaire 3-ton commercial air conditioning unit is model Ann Roberts. The unit features front or top discharge and requires no plenum or return air grille. Standard return air facilities are provided by a modernized arrangement of the front panel. Steam or hot water heating coils are available to provide year-round air conditioning. Units of 5 and 7½ hp. are also in the line. KEY NO. E-2128.

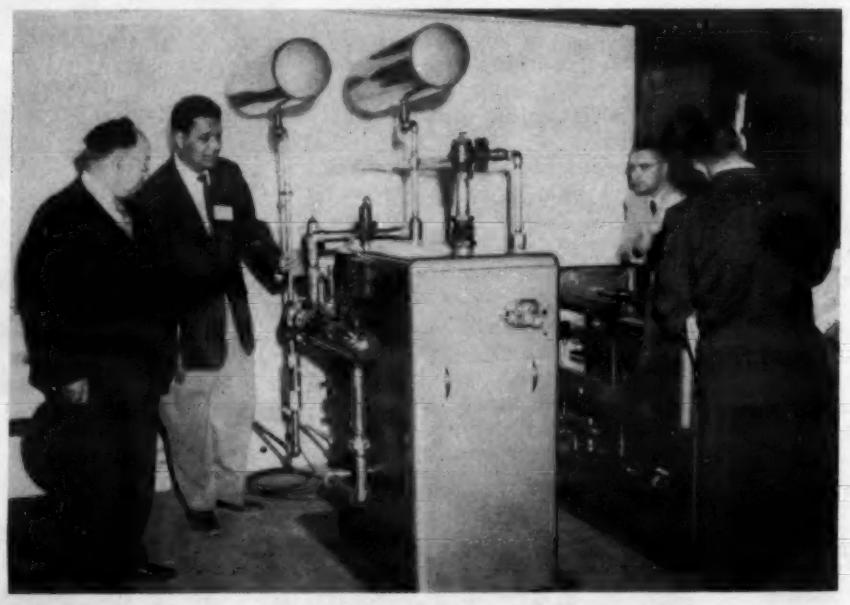
PRINCIPLE OF OPPOSED BLADE REGISTER for wall diffusers is explained to Joseph Butler (l.) by A. H. Bechtel, assistant sales manager of the AUER REGISTER CO. Looking on is F. A. Hancock, Auer chief engineer. KEY NO. E-2129.



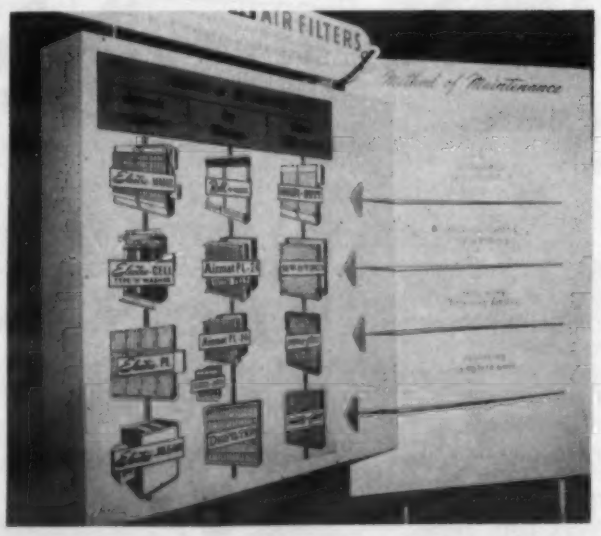
INTEREST IN THE CUSHIONED POWER gas valve with plug-in pilot displayed by WHITE-RODGERS ELECTRIC CO. are Harry and Mrs. Bloor (l.) of Princeton, N. J. Giving them the facts is Hal Teasley, district manager at Cleveland for White-Rodgers.
———KEY NO. E-2130———

DEMONSTRATION UNIT of a SPORLAN "Catch-All" valve applied to a packaged air conditioner is pointed up by Eleanora Herling.
———KEY NO. E-2135———

FOR AIR CONDITIONING APPLICATIONS, CONNOR ENGINEERING CORP. introduced a "Kno-Draft" dual-duct high-pressure valve featuring compactness, simple linkage, and positive control. Operating the demonstrator are Norman L. Cresci (l.), salesman, and Peter A. Argentieri, sales manager of Connor's Dorex Div. KEY NO. E-2131.



SNOW REMOVAL, as well as hot water heating and chilled water cooling, is an added advantage of this BELL & GOSSETT CO. unit that Al Naeole, B & G sales engineer (in light trousers), is explaining to Normal Radder (l.) of Chicago's plumbing and heating bureau. By laying pipe coils under the sidewalk and circulating hot water through them from the heat exchanger and booster pump, snow is melted as fast as it falls. KEY NO. E-2132.



DISPLAY PIECE SHOWING VARIOUS TYPES of filtering equipment was the centerpiece at AMERICAN AIR FILTER CO., INC., booth.
———KEY NO. E-2133———

MOLDED GLASS FIBER HOUSING for a Friedrich room air conditioner blower is shown by R. C. Brower (center), manager of filter distributor sales for OWENS-CORNING FIBERGLAS CORP., to Robert and J. L. Powers, Sr. of Bennettville, S. C.
———KEY NO. E-2134———

tiny tube . . . BIG JOB!

A tiny tube that does a BIG JOB . . . that's Wolverine Capilator*. It's made to give you just the desired flow characteristics you specify when used for restrictive metering of liquids, gases or air.

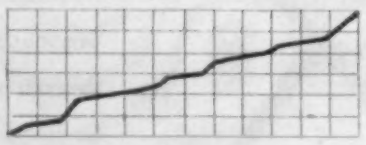
Capilator is plug drawn—has a smooth, mirror-bright inside diameter that's held to amazingly rigid tolerances. An important extra—Capilator meets the approved testing standards of the American Society of Refrigeration Engineers.

Both ends of plug drawn Capilator are chamfered inside and outside to insure unrestricted flow. Before shipment, it is washed, flow tested and, for absolute cleanliness, its ends are paper-wrapped.

There is plenty of additional information in the Wolverine Capilator Book. Write for a copy today. WOLVERINE TUBE, 1413 Central Avenue, Detroit 9, Michigan.

*REG. U. S. PAT. OFF.

GROWING UP WITH THE REFRIGERATION INDUSTRY!



WOLVERINE TUBE
DIVISION OF CALUMET & HECLA, INC.
Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

EST. 1916

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA.
SALES OFFICES IN PRINCIPAL CITIES.
EXPORT DEPT., 13 E. 40TH ST., NEW YORK 16, N.Y.

"MIGHTY-MITE" 10-HP. EVAPORATIVE CONDENSER with all moving parts exposed is examined in the BALTIMORE AIRCOIL CO., INC. booth by Wendell Maudlin of Stewart-Warner Corp. John Engalitcheff, Jr., president of Baltimore Aircoil looks on.

——KEY NO. E-2136——

NEW 5 AND 7½-HP. MOTOR COMPRESSORS added to the COPELAND REFRIGERATION CORP. line are shown to Paul J. Erickson (l.) of Roberts, Wis., and C. E. Melcher of Milwaukee by Hugh D. Smart, Copeland representative in the Chicago territory.

——KEY NO. E-2137——

PART OF ITS NEW "VERSATILE" LINE of packaged residential add-on units and commercial store conditioners was displayed by MITCHELL MFG. CO. Jack Burtis points to outlet grille on commercial unit. The new line is available in sizes from 2 to 7 tons.

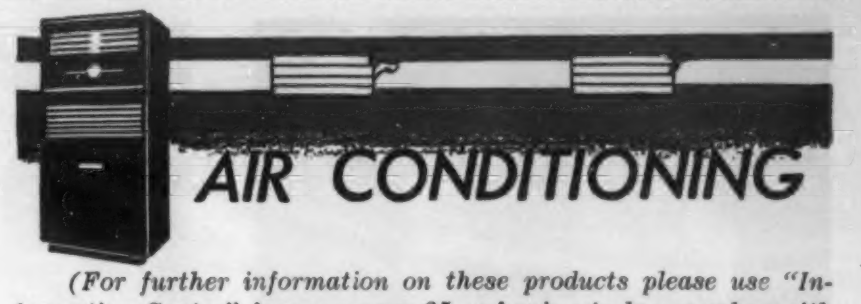
——KEY NO. E-2138——

DESIGNED PARTICULARLY FOR YEAR-ROUND residential air conditioning systems is the new full-hermetic TECUMSEH model in 3-hp. and 5-hp. sizes, being checked over here by M. Beline of Quiet-Cool Corp., and E. D. Halsey and R. C. Hiatt of Tecumseh.

——KEY NO. E-2139——

COMBINATION COOLING AND HEATING unit for residences using gas furnace for heating and "Freon-22" system for cooling is demonstrated by E. H. Spellmeyer, vice president of AMERICAN FURNACE CO. to A. Soffler, president of Dual Temp Co. in Bergen county, N. J. American will soon introduce an air-cooled unit.

——KEY NO. E-2140——



(For further information on these products please use "Information Center" form on page 25, referring to key number with picture. Additional pictures appear on pages 14, 15, 17, 24, and 31 of this issue.)

MISS RACCA FINDS IT an easy task to transport a PERFECTION STOVE CO. room air conditioner. The company promotes the utility cart as a means of moving a unit from one room to another as needed in hospitals, motels, hotels, etc.

——KEY NO. E-2141——

result . . . **PRECISION CONTROL!**

Yes, Wolverine Capilator* assures precision control. It is manufactured in both copper and aluminum in sizes ranging from .026" to .080" inside diameters.

Capilator is, however, only one of the many products manufactured by Wolverine for the refrigeration industry.

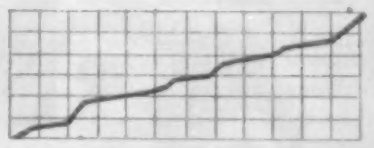
For example, Wolverine manufactures plain and integral finned tube for condensing and heat exchanger applications.

When fabrication services such as coiling, bending, flaring, expanding or spinning are required, Wolverine does the job to customer specifications quickly, accurately and economically.

You'll find the complete story in Wolverine's Statement of Scope. Write for your copy — today. WOLVERINE TUBE, 1413 Central Avenue, Detroit 9, Michigan.

*REG. U. S. PAT. OFF.

LEADING THE WAY WITH RESEARCH!



WOLVERINE TUBE
DIVISION OF CALUMET & HECLA, INC.
Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN, AND DECATUR, ALABAMA.
SALES OFFICES IN PRINCIPAL CITIES.
EXPORT DEPT., 11 E. 40TH ST., NEW YORK 16, N.Y.

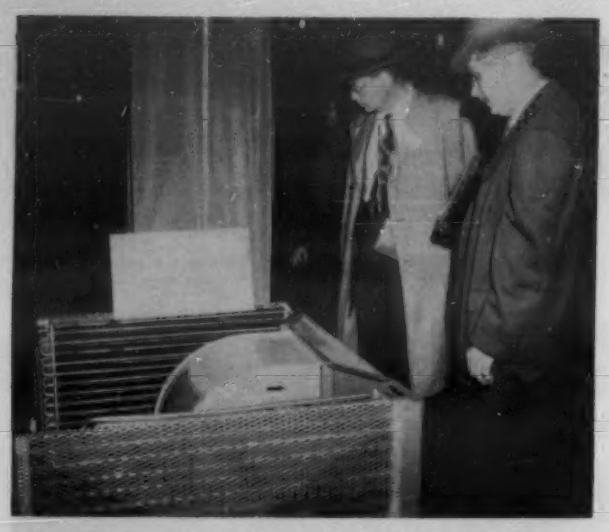
Over
70 Million Ranco Controls

Production of over 70 million controls is an amazing record in itself. But Ranco's *real* record is in the *performance* of those controls . . . performance that's bound to make them more popular by far than any other. Try Ranco and see for yourself. You'll find a Ranco Control for every job . . . a Control that cuts installation time, builds your service reputation, earns you extra profits.

To be sure . . . specify a Ranco Control for every installation.

Handy Replacement Reference
No. 1544 lists almost 5,000 replacement controls . . . the most complete line in the industry. Purchase yours from your Ranco wholesaler.

Ranco Inc.
COLUMBUS 1, OHIO
WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS



LARGE 7½-HP. AIR-COOLED condenser for residential or commercial "Weathermaker" units catches the eye of passers-by at the CARRIER CORP. booth. KEY NO. E-2143.

LIMED OAK CABINET for ¾, 1, and 1½-ton "Cool-a-Matic" room air conditioners catches the eye of L. C. Jones (l.) and L. W. Curren (r.) of Van Dorn Iron Works, Cleveland. F. J. Hollerbach, sales manager for AUTOMATIC FIRING CORP., tells them the unit can be flush mounted and bears no name plate. ———KEY NO. E-2145———

INDUCTION CIRCULATOR for high velocity, high pressure perimeter heating and cooling system was among new items shown by WORTHINGTON CORP. Units handle from 100 to 900 c.f.m. total air. Lynn Shields poses with the circulator to show its neat lines, compact size. KEY NO. E-2144.

Other pictures from the Heating & Ventilating Show appear on pages 14, 15, 17, 22, 23, and 31. Please use key numbers and "Information Center" form on page 25 for further inquiries.

Philadelphia Show

ENGAGED IN A FRIENDLY DISCUSSION over HALSTEAD & MITCHELL's new centrifugal fan cooling tower with "Take-Apart" design are Joe Sobieski (l.) of Worthington Corp., and H. I. Schmidt, Halstead & Mitchell sales manager. The towers range from 5 to 60 tons in size. ———KEY NO. E-2146———

"BRUNNER-METIC" 3-HP. WATER-COOLED condensing unit occupied center of the stage at BRUNNER MFG. CO. booth. From l. to r. are Nevin W. Day of Hartford, Conn.; F. C. Hawk, vice president in charge of sales for Brunner; Stanley Baldwin, also of Hartford; Paul A. Hunker, Brunner refrigeration sales manager; and W. M. Cashin, Brunner New England zone manager. ———KEY NO. E-2147———

COPPER-DECK COOLING TOWER, this particular model of 11-ton capacity, was shown by BUSH MFG. CO., and gets the careful scrutiny of S. C. Mathias, Shillington, Pa., George Davis, Bush, and Frank Purtell, Acar Supply Co., Philadelphia. KEY NO. E-2148.

PILOT OPERATED FOUR-WAY reversing valve for heat pumps is shown to Charles Kriss (l.) and Don Ferraro (r.) of Simplaire by Erwin Lodwig, New York area representative for ALCO VALVE CO. KEY NO. E-2149.

Mitchell expands line of Air Conditioners . . . Offers Air and Water Cooled Self-Contained units from 2 to 7½ tons

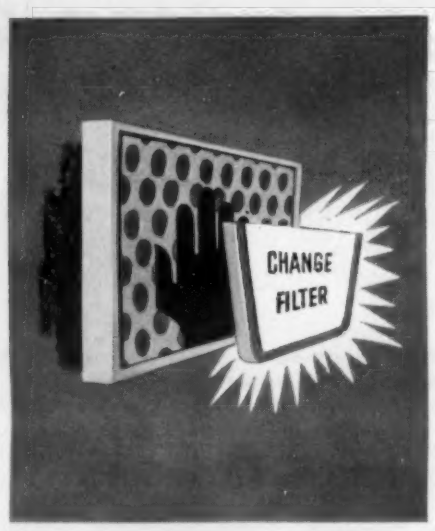
CHICAGO, ILL. — Today, 19 new Self-Contained package Air Conditioners were announced by B. A. Mitchell, president, Mitchell Mfg. Co.

Heralded as a milestone in modern air conditioning engineering, the new Mitchell line includes Store Coolers in 2, 3, 5, and 7½ ton capacities both air and water cooled. Residential Add-On units in 2, 3, and 5 ton capacities, air and water cooled. Year 'Round Residential Air Conditioners in 1½, 2, and 3 ton capacities air and water cooled with gas fired furnaces from 75,000 to 150,000 btu.

B. A. Mitchell pointed out that the new Mitchell Air Conditioning line was designed to meet the needs of the contractor, the service man and consumer, with such outstanding advantages as a *Performance Guaranteed* hermetic cooling system, new Slide-A-Way chassis and the amazing Electromagic Filter Eye.

"You expect more from Mitchell and you get all these amazing original air conditioning advantages. Mitchell discarded old fashioned air conditioning ideas and designs to give you more to sell."

"From the very introduction of room air conditioning, we have played a leading part in developing significant advances in this industry. Mitchell self-contained package air conditioners are being built with the best economies of modern mass production, giving the American public maximum quality and value in air conditioning," said Mitchell.



Mitchell has exclusive selling advantages

CHICAGO, ILLINOIS—An exclusive filter gauge, called the Electromagic Filter Eye, was announced today as standard equipment on all store units. This revolutionary air conditioning advance operates a positive signal light which tells the user when it is time to change filters.

As a deposit of dirt builds up in ordinary air conditioners, filters become clogged, capacity drops off, power and water costs increase—while cooling power decreases.

Recognizing this problem, Mitchell engineers developed the Electromagic Filter Eye that constantly measures an air conditioner's filtering efficiency and signals the user automatically when it is time to change filters for most efficient, most economical operation.

New Slide-a-Way Hermetic Cooling System

R. H. Lodge, Mitchell Sales Manager, demonstrates Slide-A-Way Chassis in 3 H.P. Residential Air Conditioner.

"This Slide-A-Way Chassis means that it will cost less to install and service a Mitchell," said Lodge at the premier showing of this new Residential line. He pointed out that it was not necessary to remove electric controls, damper linkage, baffles or sheet metal parts to slide out the chassis for service or inspection.

Performance guaranteed to provide comfort cooling in the space to be air conditioned, Mitchell self-contained units are hermetic systems, high in capacity and very quiet. Incorporating the latest welded hermetic design, the Mitchell refrigerant system is sealed

like a radio vacuum tube with nothing to adjust or oil. There is no need for seasonal pumpdowns, no belts to wear out or adjust, and Mitchell is always ready to operate. The heavy duty Mitchell compressor is super quiet and provides dependable service. There are no manhole openings or gaskets to cause leaks.

Mitchell merchandising program ready

A complete and detailed sales program is yours to build qualified prospects and close sales. Write today on your business letterhead for complete details on the Mitchell Packaged Air Conditioning Franchise.

MITCHELL MANUFACTURING CO.
Dept. X-4, 2525 N. Clybourn Ave., Chicago, Ill.

What's New

When requesting further information on new products, please use "Information Center" form.

Pancake Maker Designed for Backbar Use

——KEY NO. E-210——

CHICAGO — Pancakes can be served hotter and faster with the new Aunt Jemima semi-automatic pancake machine, according to The Quaker Oats Co. This new machine, sized to fit in the backbar of a lunch counter, gives the restaurateur portion control and eliminates waste.

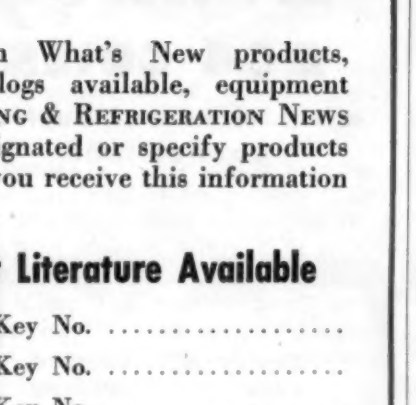
In addition to a pancake griddle, the machine has a shelf for small envelopes of specially prepared flour. Each envelope contains enough mix to make batter for one order of three pancakes. A second shelf is for the orders of syrup. The syrup placed on this shelf is kept warm by the heat of the griddle.

A water tank, equipped with an automatic water-metering valve, is located to the left just above the mixing unit, while on the right-hand side of the machine is a rack for the mixing cups. Attached to the griddle is a timing unit, which, when set, rings a bell to let the waitress know when the pancakes are ready.

Operation is simple. The waitress turns on the machine and places mixing cup on mixing unit. A valve allows just enough water for one batch of batter to enter the cup, the specially prepared flour is added, and in 5 seconds the batter is ready.

She then pours the batter on the griddle in three marked places and sets the timer. One minute later the bell tells her it is time to turn the pancakes.

Each order is made from fresh batter.



G-E Water Coolers Have New Slant Front Design

——KEY NO. E-211——

BLOOMFIELD, N. J.—A departure from the traditional style of drinking water cooler design has been made by General Electric Co.

The new water cooler features a top of electro-polished stainless steel and a louvered front panel that tapers in from top to bottom. A full-width foot pedal allows control of the drinking water from any point in front of the unit.

Eight different settings provide a wide range of water temperatures to choose from. Ten models are available from 4 to 21.5 g.p.h.

The louvered front panel snaps off for quick access to all mechanisms and controls in the unit.

Electric Clock, Timer Combined In Single Case

——KEY NO. E-212——

CHICAGO — The "Intermatic Time-Minder," an electric clock and signal timer combined in a spruce green plaskon case, is a product of International Register Co.

A buzzer with a pleasant tone sounds at the end of any desired period from 1 minute to 4 hours. The buzzer is a positive reminder since it operates until it is shut off manually.

The Time-Minder can be used to time cooking, roasting, or baking, and for a variety of other purposes.

The unit measures 4¾ in. wide, 4½ in. high, and 2¼ in. deep. Powered by an Intermatic self-starting synchronous type clock motor, it operates on alternating current only.

Built-In Oven Has 2 Vertical Doors, Fits Tight Spaces

——KEY NO. E-213——

DAYTON — Design advancements have been made in the built-in wall oven recently announced by Frigidaire.

Open one of the twin vertical doors and the other will open with it. Elimination of the ordinary swing-down door gives the homemaker new freedom of action when cooking or cleaning the new oven, according to the company. The door arrangement makes it possible to install the oven nearly anywhere, even in tight corners of the kitchen. Doors are ventilated.

The oven is a full 17 in. wide, 18 in. high, and 20½ in. deep.

New 'Liquid Eye' Series Announced by Allin Mfg.

——KEY NO. E-214——

CHICAGO—Allin Mfg. Co. has announced a new "Liquid Eye" indicator for packaged air conditioning and refrigerating units using a ¾-in. or ⅞-in. liquid line. The new 2000 series consists of a copper tube into which the parts are assembled before the final spinning of the ends to tube size.

Springs force the gaskets into contact with the sides and ends of the glass to form a perfect seal.

"My Typhoon District Manager is always Johnny-on-the-spot," says Don Kissell (left), Typhoon Los Angeles dealer.

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For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

What's New or Current Literature Available

Key No. ..... Key No. .....
Key No. ..... Key No. .....
Key No. ..... Key No. .....
Key No. ..... Key No. .....

Products Advertised
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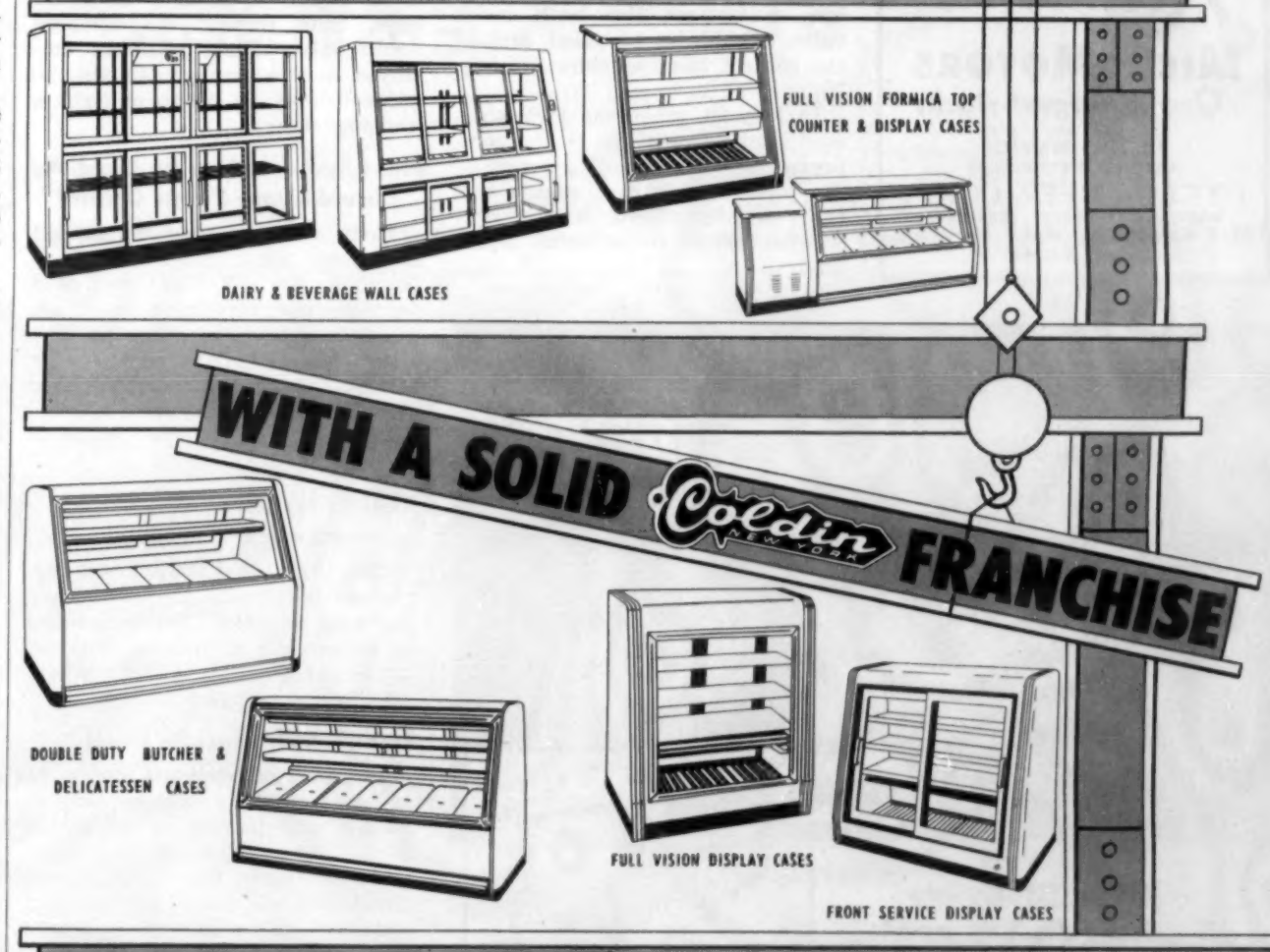
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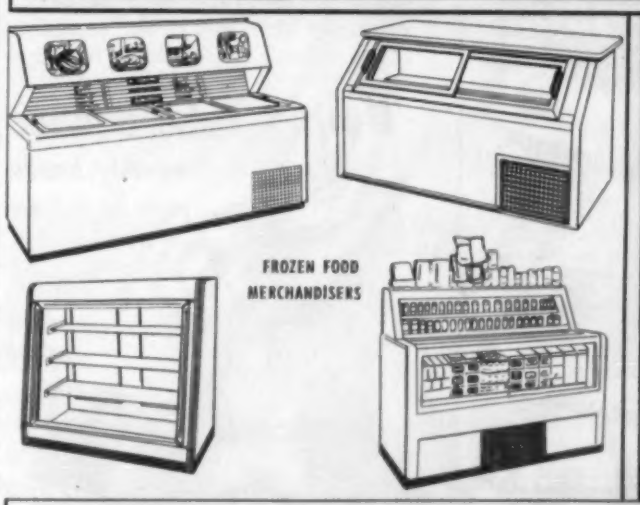

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How To Balance Refrigeration System By Selecting Proper Flow Control Device—4

By John A. Schenk, Director of Engineering, Alco Valve Co.

"Balancing the Refrigeration System with the Aid of Proper Flow Control Devices" has been discussed before several sections of the American Society of Refrigerating Engineers by John A. Schenk, director of engineering for Alco Valve Co.

In the course of his talk Schenk describes the functions of various flow control devices, including thermostatic expansion valves, etc., and offers suggestions on application and service problems.

The talk is being published by the NEWS in several instalments, this being the fourth. The first appeared in the Jan. 17 issue.

The float switch is a liquid level control that operates an electrical switch which in turn may energize or de-energize one or more electrical devices. The float switch, shown in Fig. 19, consists of two major parts: (1) the float chamber and enclosing tube assembly that houses the float ball to which is attached a ferrule with a magnetic plunger, and (2) the relay assembly consisting of a permanent magnet and a mercury switch attached to a level type magnetic armature.

As the liquid level is lowered in the float chamber, the mercury switch is tilted to "make" contact and as the liquid level rises in the float chamber the mercury switch is tilted to "break" contact. A reverse acting mercury switch can be installed so that the electrical contact is "made" on rise in liquid level and "broken" on drop in liquid level.

Float switches have many applications for operating electrical devices in the refrigeration industry. They are used to maintain a liquid level in flooded evaporators by opening and closing a solenoid liquid valve which feeds liquid refrigerant into the evaporator as the level drops. See Fig. 20.

The hand expansion valve, shown in Fig. 20, should be adjusted at full load in order that the solenoid liquid valve will remain in the open position approximately 80% of the "on" time. This hand expansion valve serves several purposes:

Hand Expansion Valve Serves Several Purposes

1. To provide smooth flow of liquid refrigerant to the evaporator when the solenoid liquid valve opens.
2. To prevent "flood back," resulting from surging refrigerant feed, before gravity equalization of the liquid refrigerant in the float chamber can permit proper operation of the solenoid liquid valve.
3. To prevent short cycling of the solenoid liquid valve.

Generally a float switch using a mercury tube switch may be installed in any location where the ambient air temperature or the liquid refrigerant in the evaporator is between -25° and 190° F.

On flooded evaporators in a multiple system, it is necessary to install either a solenoid suction valve or an evaporator pressure regulator with solenoid pilot valve, thermostatically controlled, to prevent the evaporator temperature from falling below a predetermined minimum point.

When such a control valve is installed in the evaporator outlet line, a by-pass line with relief valve should be installed around the control valve as shown in Fig. 20.

In Fig. 20, when the EPR solenoid pilot valve closes or the compressor stops, the boiling action of the liquid refrigerant ceases and the refrigerant level in the evaporator drops to a solid liquid level.

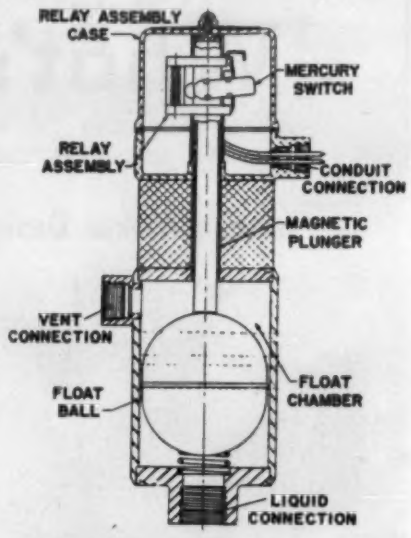

FIG. 19 shows cross section of float switch.

Under these conditions, the electric line supplying the solenoid liquid valve should be properly wired with the compressor motor starter relay and also controlled by the thermostat, as shown in Fig. 20, to prevent the solenoid liquid valve from opening and filling the evaporator with solid liquid refrigerant to the controlled level. If these wiring precautions are not followed, serious damage to the compressor may occur as the result of "flood back" when the compressor starts or a suction stop valve opens in a multiple system.

Float switches are also used on large receivers to prevent the loss of liquid seal due to sudden load demands, similar to those experienced in ice cream plants and dairy installations.

The float switch illustrated in Fig. 21 employs a reverse acting switch or one that opens the electrical circuit upon drop in liquid level, thus closing the solenoid liquid valve. Float switches employed in this manner can also be wired to ring an alarm or light a warning signal.

Float Switches Can Be Used As Liquid Sump Pump Control

Float switches may be applied as a liquid sump pump control, as shown in Fig. 22. The two lower float switches are used to obtain wide liquid differential in the sump. Normally open contacts or reverse acting switches are used in order that all electrical connections are made on rise in liquid level.

Reason for Using Third Float Switch

The third float switch is suggested to actuate an emergency alarm or warning light to indicate an abnormally high level of liquid in the sump or accumulator which may be due to pump failure.

Float Switch Must Be Level

The float switch must always be mounted level as well as perpendicular, and its location in relation to the surge drum or evaporator must be such that the desired liquid level will fall within the high and low horizontal level marks that are provided on the float chamber.

The float chamber must be connected to the evaporator or surge drum by full size lines separate from other feed connections and the vent opening on the side of the float chamber must be connected to the evaporator or surge drum at a point well above the liquid level.

Although not necessary, full opening hand-stop valves are recommended for installation in both the liquid and vent lines in order that the float chamber may be removed for servicing when necessary, without "pumping down" the system.

When these hand-stop valves are

(Continued on next page)

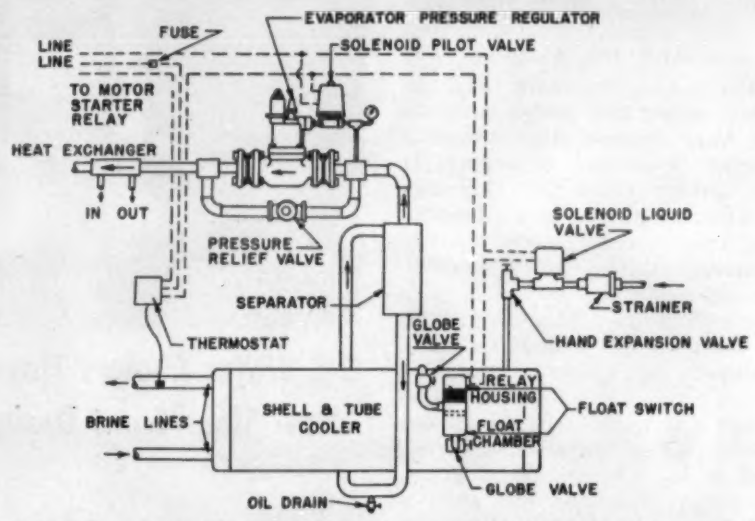

FIG. 20 diagrams a shell and tube cooler hookup including float switch, solenoid liquid valve, evaporator pressure regulator, and solenoid pilot valve.

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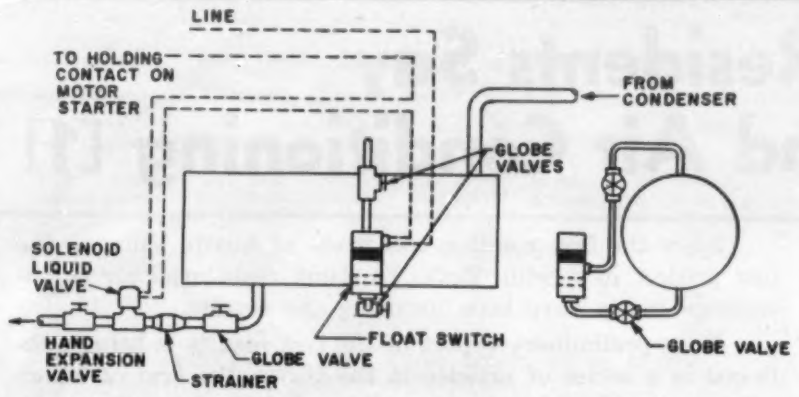

FIG. 21—This reverse acting float switch is installed on high pressure receiver.

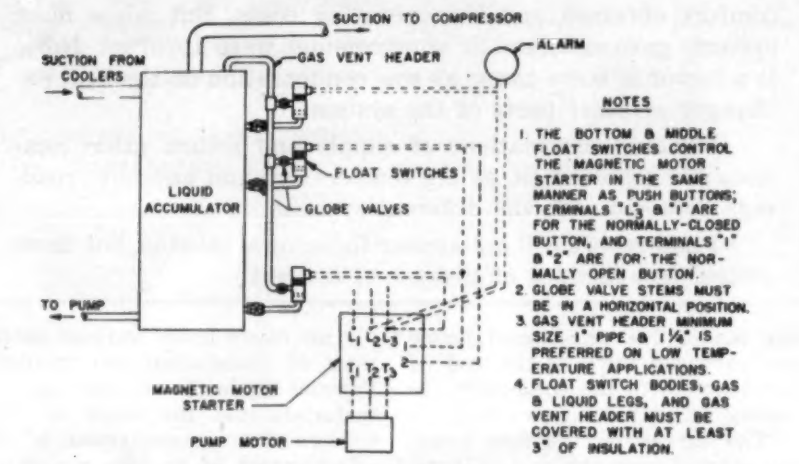
SUCTION TO COMPRESSOR
ALARM
SUCTION FROM COOLERS
GAS VENT HEADER
FLOAT SWITCHES
GLOBE VALVES
LIQUID ACCUMULATOR
TO PUMP
MAGNETIC MOTOR STARTER
PUMP MOTOR
NOTES
1. THE BOTTOM & MIDDLE FLOAT SWITCHES CONTROL THE MAGNETIC MOTOR STARTER IN THE SAME MANNER AS PUSH BUTTONS; TERMINALS "L3 & "1" ARE FOR THE NORMALLY-CLOSED BUTTON, AND TERMINALS "1" & "2" ARE FOR THE NORMALLY OPEN BUTTON.
2. GLOBE VALVE STEMS MUST BE IN A HORIZONTAL POSITION.
3. GAS VENT HEADER MINIMUM SIZE 1" PIPE & 1 1/4" IS PREFERRED ON LOW TEMPERATURE APPLICATIONS.
4. FLOAT SWITCH BODIES, GAS & LIQUID LEGS, AND GAS VENT HEADER MUST BE COVERED WITH AT LEAST 3" OF INSULATION.

Fig. 22—Three reverse acting float switches control liquid accumulator sump pump.

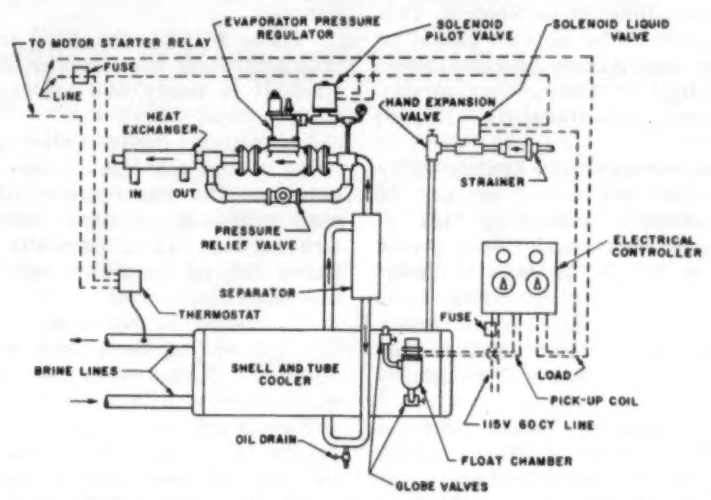

FIG. 23 shows electronic liquid level control as applied to shell and tube cooler.

Balancing a Refrigeration System--

(Continued from preceding page)
installed in horizontal lines, their stems must be in a horizontal plane to allow these valves to be free draining and present no obstruction to gravity flow.

Gravity equalization of the liquid level in the float chamber is a function of the viscosity of the liquid. For fluids having high viscosity, the response of the float switch will be slower.

For stable control on cooling applications, the float chamber and connecting liquid and vent lines should be insulated. This will reduce the boiling action of the liquid refrigerant in the float chamber, allowing the float ball to rise and fall with the liquid refrigerant level in a steady manner and provide smooth control.

Never insulate the relay housing and always provide sufficient room for its removal. A pilot light in parallel with the device being operated will give a visual indication of the sequence of float switch operation.

The heat exchanger shown in Fig. 20 is optional. It serves to sub-cool the liquid refrigerant and to dry out the wet suction gas leaving the evaporator which is carrying a high operating liquid refrigerant level. Refrigerant liquid to suction heat exchangers are most commonly used, but it is possible in some cases to pipe part of the liquid or brine being cooled through the heat exchanger as a source of heat before it is cooled by the evaporator.

Check the manufacturer's catalog for the following information on a float switch before planning the application:

1. Type of liquid or refrigerant service recommended.
2. Density of the liquid or refrigerant to be controlled.
3. Viscosity of the liquid or refrigerant to be controlled.
4. Current rating of the electric switch.

The electronic liquid level control is an electronically operated remote control mechanism that automatically operates one set of normally closed contacts and one set of normally open contacts from variation in the level of liquid.

Unit Has 2 Major Parts

The unit basically has two major parts, the float chamber and the controller. The float chamber consists of a housing, float ball, pick-up coil, and a pick-up coil enclosure. The controller is a sensitive electronic device that takes the varying electrical signal generated in a pick-up coil on the float chamber and operates a power relay. The controller contains two dial adjustments to conveniently control both the desired level of the liquid and the differential level of the liquid.

The electronic liquid level control will perform the same functions as those of the float switch previously described; however, because of its control principle, it is much more flexible and has a broader range of application. Fig. 23 shows a typical application of this device on a shell-and-tube cooler together with the necessary wiring.

In using the electronic liquid level control to maintain liquid refrigerant level by means of a solenoid liquid valve, a hand-expansion valve must be used for the same reasons as applied to the float switch previously described.

The electronic liquid level control has the following advantages over the float switch previously described:

1. The controller containing the electrical switching mechanism can be located remotely from the float chamber.
2. The wires that connect the pick-up coil on top of the float chamber to the controller carry only a low voltage electrical signal.
3. The differential, as well as the range of the liquid level, can be adjusted to suit the operating conditions by convenient dials located on the remote controller.
4. The float chamber can be installed in any location where the ambient temperature or the liquid refrigerant temperature is below -25° F.

(To Be Continued)

Simplified Method for Rating V-Belts Offered By Worthington Corp.

HARRISON, N. J.—Worthington Corp. is offering a new master engineering manual on multi-V-drives. The 100-page manual presents a scientific and simplified method for rating V-belts.

Each 60-cycle motor speed with complete drive selections is shown on separate pages.

A table on drive selections is said to contain nearly every possible stock sheave combination and each belt column in the table section has its own series of arc and length correction factors.

In addition to generally accepted theories on V-drive engineering, such important factors as small diameters sheaves, centrifugal force, average hours per day operation, and other conditions affecting belt life have been considered.

Gove, Mittelman Named to Allen-Bradley Sales Posts

MILWAUKEE—Robert L. Gove, engineer for Allen-Bradley Co., has been assigned to the Detroit office as sales engineer, and Harold Mittelman has been added to the sales engineering staff of the Cincinnati office, the company announced recently.

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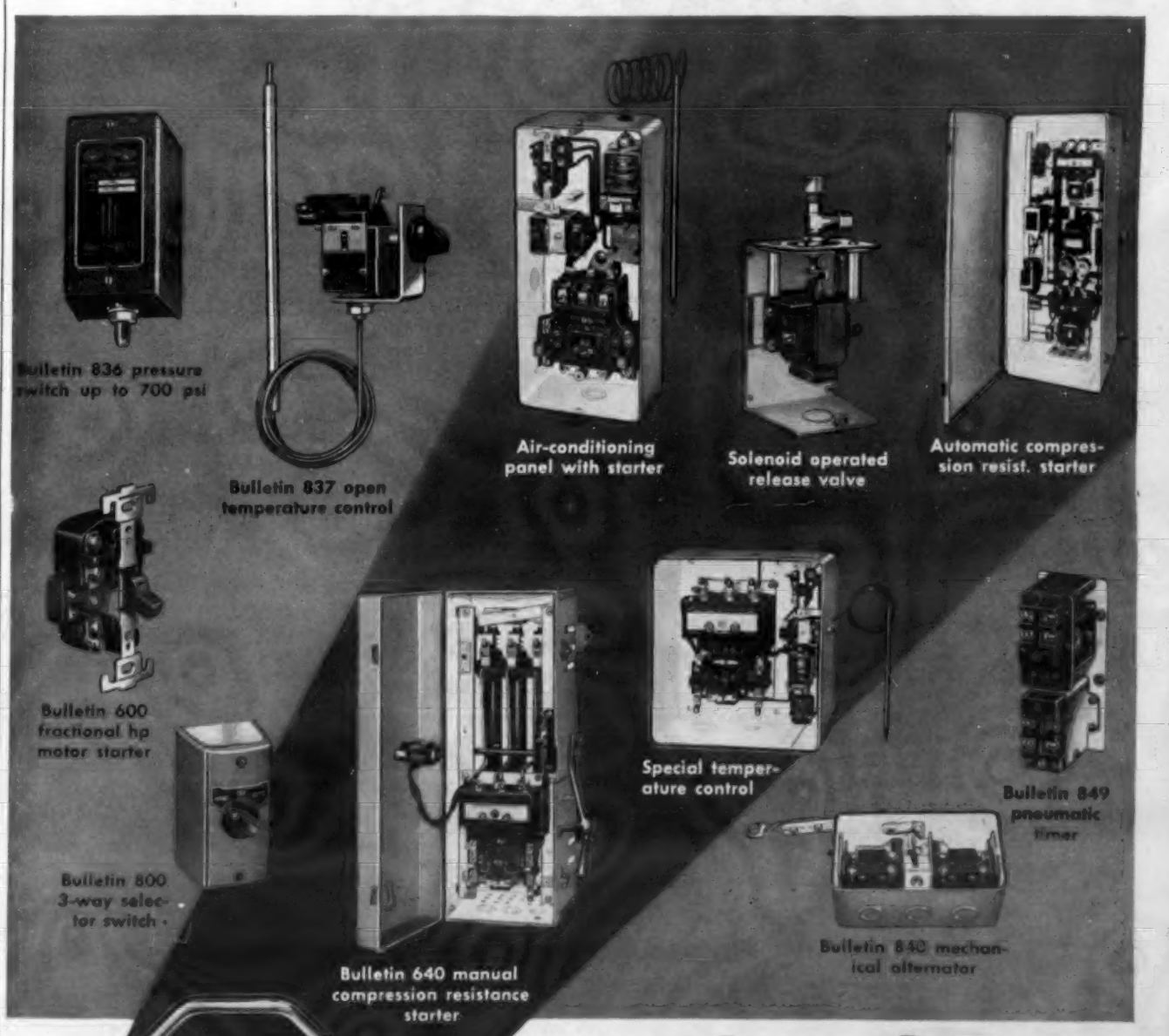
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What 21 Austin Village Residents Say About Their Year-Round Air Conditioning [1]

Since the first mention was made of Austin Village—the test project in Austin, Texas to study residential air conditioning—many have been awaiting the results.

First preliminary report of the test results is being published in a series of articles in the NEWS, the first of which appears on these pages.

The 21 homeowners are generally satisfied with both the comfort obtained and the operating costs. But while most systems gave satisfaction, shortcomings were apparent. Noise is a factor in some cases; as was condensation on the heat exchanger or other parts of the system.

Various combinations of supply and return grille locations are reported on, as are temperature and humidity readings obtained with the different systems.

Final report will not appear for several months, but these preliminary findings offer much of interest.

CHICAGO—How did the air conditioning systems in the 22 homes comprising the Austin Village project in Austin, Texas work last summer?

Some answers to that question were revealed in a preliminary report when the National Association of Home Builders met in Chicago recently.

The 21 manufacturers of air conditioning equipment installed in the project have already received private reports on their own installations. As a special discussion group meeting in Chicago, the preliminary general report on comfort cooling performance was presented by C. W. Nessell, director of the mobile laboratory of National Warm Air Heating and Air Conditioning Association.

Latter group along with NAHB and Air-Conditioning & Refrigeration Institute sponsored the Austin Village project.

"Generally, the owners are satisfied with the comfort cooling the installations are giving them and are not disturbed over the costs," Nessell declared.

"There is some indication that air conditioning is changing living habits and perhaps contributing to better health."

Some specific data on the health and psychological aspects of residential air conditioning will be included in the final report on the project, which won't be released for several months, it was indicated at the Chicago meeting.

Cost and Efficiency Objects of Study

"One objective of the village-wide survey was to determine those design and installation considerations that the builder can use to provide the greatest degree of occupancy cooling comfort at the lowest level of installation and operating expense," Nessell explained.

"The mechanical performance of the cooling equipment itself was not checked except to the extent necessary to determine the amount of sensible and latent heat removed from the building. It was assumed that the equipment would deliver its rated capacity, and that it was properly installed and adjusted by the manufacturers' local representative or dealer.

"There were 22 houses in the village. Twenty-one had been sold and were occupied, although occupancy in some had been for only a week or two before the survey was made. The unoccupied house was surveyed towards the end of the season with the equipment operating without occupancy load.

"The survey on the first house was started near the end of June, eight were started in July and 13 in August, the test period extending from June 26 to Sept. 2. This encompassed the hottest period of a very hot Austin summer when many days were at or considerably above design temperature," Nessell said.

"The surveys were conducted by placing a substantial amount of automatically recording instruments in each house for a period of from five to 10 days to determine the general operating characteristics of the system under varying outdoor temperature and humidity conditions and occupancy habits.

"Unfortunately these outdoor variations were not of the 'hoped for' magnitude because the weather remained consistently hot.

One Day Selected As 'Datum Day'

"One day of that period was selected as 'Datum Day' when additional instrumentation was installed with an accelerated program of manually and automatically recorded readings and observations.

"These included selected inside and outside wall surface temperatures, glass surface temperatures in some instances, ceiling temperatures, attic temperatures, a measurement of sun intensity, and frequent readings of the significant air temperatures in each room from early morning until late in the evening to determine the change in load characteristics as the sun moved around the house.

"In addition, the amount of condensate from the evaporator or cooling coil was measured, compressor (or its equivalent) operations recorded, and a continuous record of indoor and outdoor dry bulb temperatures and relative humidities.

'Datum Hour' Selected

"In addition, a 'Datum Hour' usually between 3 and 4 of the Datum Day afternoon, was selected for a still more intensive check of the operational characteristics of the system, and the comfort level produced within the house," Nessell added.

"This report is distinctly a preliminary one, and presents only such data that could be taken from the job files without much analytical study. The time element involved in its preparation did not permit the completion of the necessary studies.

"Omitted for this reason are such items as the air flow rates; velocity of the air discharged from the supply registers and its probable relationship to the room air stratification; comparative study of supply and return air register placement; heat gain in the supply air ducts under various conditions of installation and location; thermal lag with various types of materials and insulation in wall construction; a comparison of the effectiveness of various sun shading devices both inside and outside the house; and others of a similar nature.

"These will be discussed in the final edition of the General Report when it is ready and released at a later date.

"A rather limited study was made of the reaction of the occupants to the performance of the air conditioning system. The data was secured by a carefully prepared list of questions asked by the laboratory crew.

"It should be remembered that the houses had been occupied for not more than a month or two in most cases, and in a few instances not more than a few weeks. A full season of living with the installation had not been experienced. The questions asked included some concerning occupancy habits that might affect the system's operation.

Buying Motives Surveyed

"Ten of the owners of the 21 houses that were sold stated that they purchased the house primarily because it was air conditioned. One had the house built to his own design and insisted that it be air conditioned. Six owners liked the house plan, or the location, or both, and the air conditioning was incidental as a buying motive. Two bought because of the plan and the air conditioning, and the other had no comment on the subject.

"One stated that his previous domicile had been cooled, but the others apparently had never lived in an air conditioned home previously," Nessell said.

"All but one of the 21 owners were satisfied with the comfort conditions within the house, which included temperatures, control, and the temperature level maintained in the several rooms. However, some so stated with reservations.

"Several complained that one or two rooms were either too warm or too cool. One complained that the house was not cool enough when entertaining four to seven guests. One desired cooler bedrooms and closed the register valves in the dining and living room areas to direct more cool air to the sleeping quarters. One stated that the performance was 'reasonably good,' and the one dissatisfied owner stated that the house was 'too warm.'

"A review of the chart recordings of room air temperatures in his house indicated he had reason to complain because the living room temperature reached 87° on a 100° day.

"Fourteen of the 21 were content with the relative humidity that was maintained in the house. One owner complained of dry nostrils every morning, but this is difficult to rationalize since the

(Continued on next page)

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Table 1—Noise Levels In Austin Project

INSTALLATIONS ON WOODEN FLOORS OR PLATFORMS — DECIBEL READINGS

	Room Near Equipment		Room A		Room B		Room C	
	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor
A	42	46	30	39	38	39	38	39
B	45	47	36	38	37	39	30	30
*C	50	....	38	....	38	....	40	....
D	39	42	32	54	30	40	30	44
E	43	46	32	41	32	31	35	42
F	42	44	33	35	33	35	36	36
G	49	51	40	41	37	40	36	38

INSTALLATIONS SUSPENDED FROM JOISTS OR IN ATTICS — DECIBEL READINGS

	Room Near Equipment		Room A		Room B		Room C	
	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor
A	36	46	32	39	32	40	36	44
*B	32	....	32	....	30	....	26	....
*C	40	41	40	41	31	34	32	34
D	31	30	34	40	27	31	25	30

*This equipment had a remote compressor.

INSTALLATIONS ON CONCRETE SLABS — DECIBEL READINGS

	Room Near Equipment		Room A		Room B		Room C	
	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor	Fan Only	Fan and Compressor
A	39	43	39	42	39	42	30	34
B	36	51	29	42	29	41	27	36
C	38	45	38	52	36	36	33	34
D	44	45	32	34	35	32	32	34
E	36	37	34	34	34	34	28	33
†F	45	47	38	41	38	41	36	32
G	39	43	35	35	32	32	....	....
H	40	43	32	35	32	35	33	34
I	33	44	42	47	33	36	33	34
‡J	....	33	....	29	....	29	....	....

†This equipment had a remote compressor.
‡This equipment was completely isolated from the living area of the house.

Austin Village Findings--

(Continued from preceding page)

relative humidity in his house was usually over 46%.

"One complained of excessive humidity during and immediately after the operation of an unvented automatic clothes dryer. One stated the humidity was excessive in the morning and two others that it became uncomfortably high during the night when the compressor was cycling. One owner was completely unhappy about the relative humidity.

"All but three owners reported that the windows were kept closed 24 hours a day. The three that opened them complained of lack of fresh air and a musty odor and opened the windows occasionally for fresh air. One owner stated he preferred to sit on the patio in the evening because the air was 'stale' indoors.

2 Did Not Use Cooling All the Time

"All but two of the owners allowed the air conditioning equipment to operate continuously throughout the cooling season.

"One of those that did not, stopped the compressor operation at bedtime by setting the thermostat indicator to the top of the scale, which allowed the blower to continue to operate, and then opened the windows. The other was an employed couple that turned it off completely when they left in the morning and started it again upon their return in the evening.

"They expressed satisfaction with this type of operation, but the temperature recordings indicate that comfort conditions were not approached until about midnight," Nessell commented.

"Eight of the 21 owners complained of the noise, with comments such as 'believe it is excessive' and 'very objectionable.' Ten said they had 'no complaint' or 'no comment.' The other three were satisfied, one offering the comment that 'it is very quiet.'

Thermostat Settings

"Since one house was not occupied, and one was manually instead of thermostatically controlled, the thermostat study involved only 20 houses. One owner maintained a thermostat setting of 70°, four of them at 72°, two at 74°, two at 75°, three at 76°, two at 77°, and six at 78°. The lower temperature settings were not reached during the day. At least two families lowered the setting to 70° when entertaining to 'keep the house cool while the guests are here.'

"There was thermostat disagreement in at least one house—the wife raising the setting and the husband lowering it again as soon as he noticed it. Other than these, the thermostat settings were never changed during the cooling season," Nessell explained.

"Many, but not all, of the houses had kitchen ventilating fans that usually were operated while cooking or baking was in process. In few instances, however, was any provision made in either the structure or the air conditioning system for the introduction of an amount of outdoor air equivalent to the quantity exhausted by the fan. Some of it probably entered through the furnace flue or the openings provided to ventilate the utility space.

"Most of the homes had TV or radio sets in operation many hours a day. These, along with other heat releasing appliances such as automatic refrigerators and dishwashers suggests that heat gain calculations should take these into account.

"In some cases, there was an appreciable sensible and latent heat gain from bathing. The number of shower and tub baths per family per day were reported and varied from two to five showers and two tub baths per day.

Owners' Comments

"Some of the general comments offered by the occupants were:

"Sleep better, health better.
"Eat better, eat heavier foods.
"Cook more, bake more.
"Children have more pep.
"Children play indoors more.
"Less sinus trouble.
"Less dirt and dust in the house.
"Husband in better mood.
"Family has better dispositions.
"Entertain more.
"Stay home more.
"Fewer picnics and movies.
"Do more household work.
"Have more warm drinks.
"Would recommend to others.
"Cost not excessive.

"Most of them stated they were glad they bought the house," Nessell emphasized.

"Noise level readings were taken with a decibel meter of the type specified by FHA in bulletin ME-12. It was equipped with additional accessories required to make a vibration check. The meter was set on the 40 db. weighted network scale, and readings taken in the center of the room in each room of the house, except for a bedroom or two not available to the laboratory crew. Generally they were taken when extraneous occupancy noise was at a minimum.

"Readings were also taken in the passageway or room in front of the opening to the space withing the living area in which the equipment was installed. If the equipment was installed in the attic, a reading was taken in the area directly beneath it. Frequency and % pressure readings were also taken for further analysis if desired. Readings were not taken on one house because the equipment was being moved outdoors when the meter was available.

For purposes of comparison, a scale of sound levels for typical noise sources is given below.

Source	Decibels
Threshold of hearing—acute	0
Threshold of hearing—average	15
Rustle of leaves	18
Whisper at 5 ft.	25
Average dwelling	35
Quiet office	40
Average office	50
Average restaurant	58

"Decibel readings were taken with only the air circulation blower operating and another set with both the blower and the compressor in operation. Those readings taken in the living area immediately adjacent to the opening to the equipment room were used as a base to rate the acceptability of the installation with respect to a 40 db. maximum noise level.

"It was found that only 12 installations had a rating of 40 db. or less when only the air circulation blower was operating. Incidentally, it should be noted that the 'blower only' operation noise level will be that of the equipment operating on the heating cycle, with a slight increase for burner operation and combustion noise," pointed out Nessell.

"It was further found that only three of these 12 installations had a noise level of 40 db. or less when both the blower and compressor were in operation. Therefore, only three of the 21 houses measured had equipment that would be approved under a specification writing the noise level to 40 db. or less.

"Table 1 gives the noise levels for all the houses with the blower only operating and with both the blower and the compressor operating. They are given for the area immediately adjacent to the equipment and for three representative rooms.

"In some installations the equipment was mounted directly on the concrete slab floor, in others it was placed on the joists in the attic, and in still others was placed on a wooden platform or floor.

"Since some of these types of construction may be more susceptible to vibration or more resonant than others, the tabulations group the installations by the type of construction on which the equipment is mounted.

"Noise level readings were also attempted at approximately 10 ft. from cooling condensers, forced draft and induced draft cooling towers mounted outside the building. While these could not be taken successfully in every instance, those that were taken varied from 41 to 58 decibels, with most of them 50 decibels or higher. These were taken because of complaints of noisy equipment by the neighbors.

"It is believed that future study of the noise levels and of vibration rates that were also taken will indicate some of the reasons for these relatively high noise level readings.

"Some of it is due to equipment design, particularly with respect to the mounting of the blower. However, it is already indicated that the equipment is not entirely to blame. The wooden platforms built for mounting the equipment were not properly isolated from the framing of the structure and little, if any, attempt was made to apply sound deadening materials to the equipment room.

"The reduction of the noise level appears to be as much the responsibility of the builder and architect as it is that of the manufacturer," Nessell suggested.

(To Be Continued)

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Clean Mechanism, Adequate Water Supply, and Sufficient Current Will Eliminate Most Troubles, Experts Tell Clinic

GRAND RAPIDS, Mich.—Keep the freezing mechanism clean, provide adequate water supply, and provide sufficient electrical current and you will eliminate almost all service trouble with automatic ice makers, Michigan servicemen were advised by representatives of four ice maker manufacturers here.

That advice was given at the third in a series of service clinics sponsored jointly by the Michigan Refrigeration Service Engineers Society and local chapters.

At this clinic, hosted by the Grand Rapids chapter, E. L. Lewis, service supervisor for Carrier Corp.; David Cummings, sales engineer for Jacobson Heating & Cooling Co., local York distributor; Ralph Wilkins, service manager for the Frigidaire Sales Corp. branch in Detroit; and Fred Whitcomb of American Gas Machine Co. described and answered questions on their machines.

Carrier

The Carrier cuber exhibited at the clinic made ice in 26 tubes around which evaporator coils are wrapped. There is sufficient space between the coils, Lewis pointed out, to provide a warm spot where the ice does not freeze solidly. This gives the ice an hour glass effect.

When the aperture in the frozen hour glass becomes so small as to cause the water to overflow the tube, a thermostat in the overflow starts the harvest cycle. Hot gas passes through the coils releasing the ice. The ice slides down the tubes breaking off into cubes as it hits the slide, and then drops into the storage bin.

For crushed ice, the cubes are guided to a built-in ice crusher rather than directly into the bin. The crusher is a revolving drum equipped with projecting metal picks that break up the ice and force it through a metal grid that crushes it. The grid is adjustable to vary the size of ice chunk as desired.

York

The York cuber also freezes the ice in 16 tubes around which the evaporator coil is wound. But the coils are close enough together so that the ice is frozen into a solid stick. When the make-up water overflows, a thermostat bulb in the overflow drain actuates the hot gas solenoid.

This hot gas causes the ice to slide down the tube where it is chopped into cubes by a mechanical pick. The cubes then slide to the storage bin.

For "Flake Ice," York has an air-cooled machine with a revolving freezer drum. Water flows over the outer surface of the refrigerated drum, freezing into a thin layer of ice. As the drum revolves, a cadmium plated blade cuts the ice from the drum and drops the flakes into a bin.

Frigidaire

The Frigidaire machine sprays water over a freezing plate tilted at a 15° angle. The water freezes on the plate to a predetermined thickness. When the ice reaches the set thickness, a thermal control starts the hot gas defrost cycle.

At the end of each freezing cycle all water that hasn't been frozen is automatically drained by a simple siphon arrangement and the sump is flushed with fresh water, carrying away any sediment or impurities.

Hot gas warms the plate causing the ice cake to slide down the plate onto a grid of low voltage wires. The heated wires cut the ice sheet first into strips and then the strips into squares. The squares drop directly into the storage bin.

Scotsman

The American Gas Machine's "Scotsman" ice maker sprays water from below into inverted cups to which evaporator coils are attached. When the back pressure reaches a certain setting, the compressor is cut off. About eight minutes later, hot water, which has been heating in a 2-qt. tank, flows into the evaporator coil section above the inverted cups defrosting the coils and releasing the cubes. The cubes slide into the storage bin.

More than enough water flows into the evaporator section so that some spills over and washes out the sump from which the spray water is taken, carrying off any deposits, Whitcomb explained.

The water used to defrost the coils becomes chilled in the process and passes through a three-way water valve to the sump where it is used to make the next batch of cubes.

For chunk ice, American Gas Machine has a unit that operates in the same manner as a table meat grinder. Evaporator coils are wound around an augur tube. Water is introduced into the tube from the bottom. As the augur slowly revolves, the water freezes to it and is carried upward. When it reaches the top of the tube, it is broken off into chunks and dropped into a storage bin.

Four Factors for Proper Operation

Cummings, the York representative, told the servicemen that with the York ice maker, there are four factors necessary for proper operation of the machine.

These are: (1) the temperature of the water to the machine, (2) adjusting the "Water off" temperature to "water on," (3) the overflow thermostat setting, and (4) the evaporator thermostat setting.

There is no hard and fast adjustment for water temperature, he said. This must be determined at each particular installation, according to existing water temperatures and to instructions given with each machine.

But the setting is critical, he warned, and should not be guessed at. A mistake of two or three degrees in the setting can affect the capacity of the machine by as much as 20%.

The proper overflow thermostat setting may be obtained from the distributor, if you do not know it, he said.

In setting the evaporator thermostat, you must be sure that you allow enough time for a complete harvest of cubes, he said. He advised against trying to make the freezing setting too close to the harvest setting, especially when the machine is new.

He pointed out that such a setting might appear satisfactory when the tubes are bright and clean. But after the machines have operated for a while and scale begins to form on the tubes, the cubes will take longer to drop.

In this case, if the harvest is not completed by the time the freezing cycle begins again, cubes can hang in the tubes where they can do irreparable damage. The expanding ice in the tube can bulge it. Once a tube is bulged, ice will always hang in the bulge, being too large to slide down the remainder of the tube.

When this happens, the customer gets no ice and will have to replace the whole top section of his unit—an additional cost of about $250, Cummings said.

Keep Tubes Clean and Free of Scale

Such trouble can be avoided by keeping the tubes clean and making sure all scale is removed in the cleaning, he pointed out. To further minimize the danger, he noted, York has rewired its newer models so that the defrost cycle will be repeated if any ice hangs in the tubes until that tube is cleared.

Cummings explained that each tube drains individually into the overflow pipe. So if any tube is blocked, the water runs into the overflow pipe and actuates the thermostat that starts the harvest cycle again. This will continue until the obstruction is cleared.

For cleaning, Cummings suggested putting vinegar into the water and running it through a complete cycle. Then running the machine through several defrost cycles to flush it out.

For real dirty machines, he said, there is a commercial cuber cleaner on the market. If that doesn't do the job, square brushes are available so that the tubes can be cleaned in the same manner as cleanable condensers.

Mineral deposits on the drum of the Flake-Ice machine can be polished off with fine emery paper.

Howard Hull, York factory representative in Michigan and Indiana, pointed out to the servicemen that York's machine had a completely hermetically sealed circuit that should not be cut into in the field. The whole circuit should be returned to an authorized field service station for repair.

"Ninety-five per cent of our trouble is in the control circuits and in keeping the tubes clean," he said, "and these things the regular serviceman can handle."

Freezing and Harvesting Changeover Points

Lewis, in discussing his Carrier ice maker, also emphasized the importance of removing scale from the tubes and of not setting the freezing and harvesting changeover points too close to prevent ice from hanging up. This will cause a short freezing cycle and incomplete ice cubes, he said.

He explained how the new Remco two-bulb control operates on the Model 26H ice maker to prevent the machine from cycling on one of the two power elements only. This will be covered in detail in a later issue of the NEWS.

Whitcomb told the servicemen that 90% of the service trouble on the Scotman cuber was in the original installation. If you have an adequate water supply and an adequate electricity supply to start with, you won't have much trouble with this unit, he noted.

Aside from this, most service difficulties can be cleared up by changing the three-way water valve. When the customer complains that the cuber is running too long, is making shallow cubes, or is making cloudy cubes, he said, the trouble may simply be dirt holding open one of the valves. Change the valve and you are all set.

Whitcomb claimed that by heating the water before using it, much of the mineral will accumulate right on the heating unit before it goes through the freezing cycle. He advised scraping the lime off the heater element once every six months.

He also claimed that using hot water to defrost assured the customer of positive defrost at any temperature above freezing.

Wilkins of Frigidaire was asked what assures that the ice cake will slide completely off the freezing plate and not hang up on it. He replied that with normal vapor and head pressures good harvest conditions will be set up and the ice will not refreeze to the plate.

Occasionally low ambient temperature could result in lower high pressure vapor temperature, he admitted. This condition would only result where ambient is less than 50° F.

Its correction is very simple, he said, by adding a switch to control the condenser fan maintaining a proper vapor temperature. This switch is available from Frigidaire, he added.

Harry Alter Opens South Side Branch

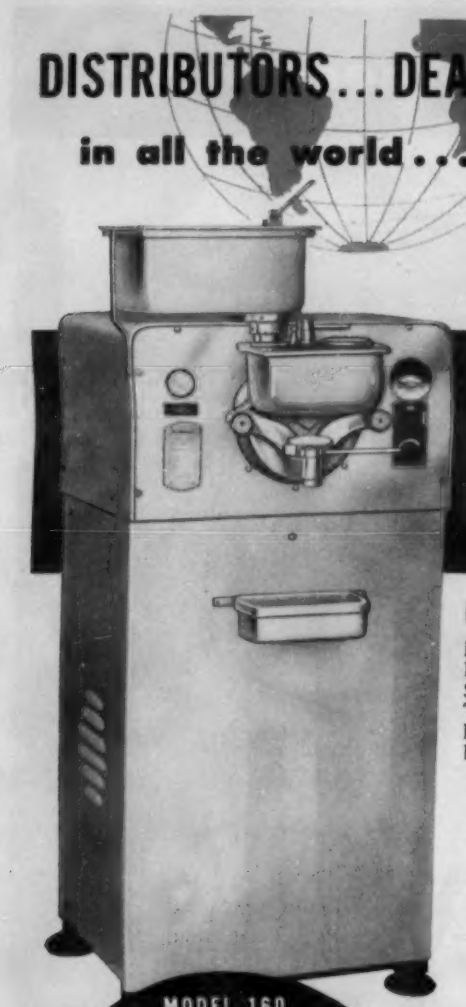
CHICAGO — The Harry Alter Co., distributor of refrigeration, electric motors, and air conditioning parts and supplies, has opened a south side branch for the convenience of its customers in that end of Chicagoland.

The address is 10407 S. Michigan Ave. The telephone number: COmmodore 4-7450.

This new branch is under the management of Orville Barrow. It was opened shortly after the opening of Alter's west side branch in December at 7330 W. Madison St., Forest Park, Ill., under the management of Joe Holub.

This gives the Harry Alter Co. four addresses. The home office is at 1728 S. Michigan Ave. and the New York City address is 134 LaFayette St.

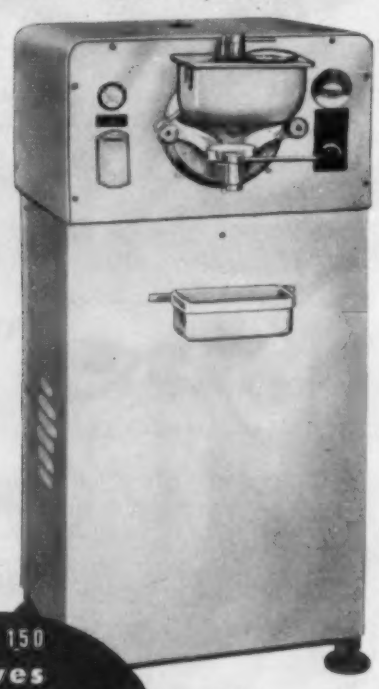
DISTRIBUTORS...DEALERS...HERE IT IS!
in all the world...the Lowest in Price!



2 NEW MODELS FOR THE ECONOMY MARKET by FREEZ-KING

BIG MONEY MAKER FOR

Lunchrooms, Drive-ins, Supermarts, Theaters, Drug stores, Bus stations, Burger stands, Skating rinks, Amusement centers, Military canteens, Grocery stores, Industrial Cafeterias
. . . and many others



MODEL 160 SHAKE DISPENSER serves 200 SHAKES AN HOUR

- Easy! As simple as serving a soft drink.
- Produces shakes and malts at low cost—high speed—big profits.
- Giant capacity with 2½ quart refrigerated reservoir and 2½ gallon detachable mix reservoir.
- Sanitary! Direct from dispenser to customer. No handling. No contamination.
- Has famous exclusive Freez-King features, including continuous freezer action and "Seeing Eye" dial.
- 5 year warranty on compressor unit.

Model 150 serves SOFT ICE CREAM or FROZEN CUSTARD

- Sales of a few gallons daily can pay for equipment in a few months.
- Uses less power—costs less to operate.
- Requires only four square feet of floor space.
- Easy to clean! Takes only 5 to 10 minutes instead of the usual ¼ to 1½ hours.
- Action is continuous. Freezer reservoir automatically refills with mix as finished product is drawn off.
- "Seeing Eye" dial shows if product is at proper serving consistency.
- Compressor warranted for 5 years.

TERRITORIES AVAILABLE
for master distributors & dealers
Write for details

The FREEZ-KING CORP.
2518 W. Montrose Ave., Dept. D
Chicago 18, Illinois

GREATER $ PROFITS FOR ALL! $ WITH THE NOLIN Moisturizer VEGETABLE CASE

AVAILABLE IN 5' - 8' - 10' SIZES
If It's Not a NOLIN, It's Not a MOISTURIZER

NOLIN MANUFACTURING COMPANY 1400 LLOYD ST. PH. LD 57 MONTGOMERY, ALABAMA

More New Products from the Heating and Ventilating Show

For more information on products pictured here, please use key numbers and "Information Center" form on page 25. Other pictures from the Philadelphia Show can be found on other pages in this issue.

A NEW SERIES OF ROOM THERMOSTATS for both heating and cooling was displayed in this group in the GENERAL CONTROLS CO. booth. Bob Allen (l.), Kansas City representative for the company, points out a clock thermostat to William Roecker, Cleveland representative.

——KEY NO. E-215——

MECHANICAL ALTERNATOR FOR CONTROL OF two pumps in any liquid handling system was among many types of controls for air conditioning systems shown by SQUARE D CO., and is being demonstrated here by M. E. O'Connell of the company.

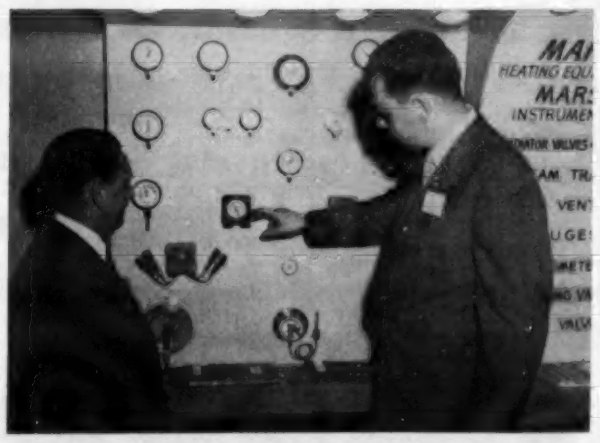
——KEY NO. E-216——

"AQUA-SAVER" COOLING TOWER OF THE self-contained type (so designated because pump is integral part of the tower, and unit is shipped completely assembled, ready to receive water pipe and wiring) was shown by the PEERLESS SALES DIV. Checking it over here are R. E. Elgin, and John W. Creagh (kneeling).

——KEY NO. E-217——

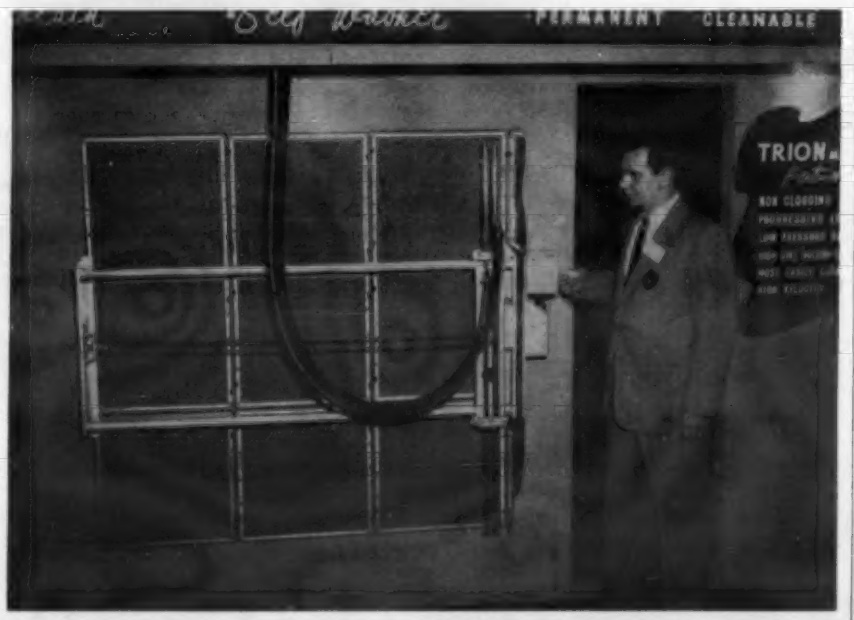
DESIGNED PARTICULARLY FOR MODERN air conditioning applications is this ⅙-hp. BRUNDAGE CO. blower using split-phase motor, and discussed here by T. V. Small, Lennox Furnace Co., Ft. Worth, Texas, and Donald Johnston of Brundage.

—KEY NO. E-218—



AMONG THE BROAD LINE OF GAUGES, INSTRUMENTS and other accessories for the air conditioning and heating fields exhibited by MARSH INSTRUMENT CO. was a new "deluxe" refrigeration and air conditioning serviceman's all-purpose thermometer, which is being shown to Claude Brunton of Mechanical Refrigeration Supply, Inc., Huntington, W. Va. by E. L. Kneifel of Marsh. This instrument's remote reading feature tells what's going on at any desired point of measurement. It is also ideal for checking thermostats and has many other uses.

——KEY NO. E-219——



"TRAVELING CURTAIN, SELF-WASHING" mechanical air filter exhibited by TRION, INC., is demonstrated by R. E. Sweitzer of the company. A traveling curtain of mechanical air filter panels is suspended on an endless chain conveyor, which is moved intermittently by an electric drive and adjustable timer mechanism to provide automatic cleaning and adhesive application for the filter panels.

——KEY NO. E-2110.——

"What is that unique quality about USAIRCO that can't be seen in this plant picture?"

John Craig, sales manager, takes two minutes to answer this question for distributors and would-be distributors of packaged air conditioning.

The United States Air Conditioning Corporation plants, Minneapolis, Minnesota, where the latest scientific developments are engineered into the complete line of USAIRCO *air conditioning equipment.*

"You can get out your fine-tooth comb, your high powered magnifying glass—you still can't *see* that unique USAIRCO quality that can mean a new approach to the air conditioning business *for you.* But you *sense* it the minute you talk with *anyone* in the USAIRCO organization. We call it our "two-sided partnership".

More than 30 years' progress in the air conditioning business means USAIRCO equipment is unsurpassed in quality. The *complete* line includes upright and central station "packages" for industrial and commercial markets . . . year 'round combinations, "add-ons" and air-cooled units for your residential markets . . . at competitive prices! USAIRCO is a reliable source, large enough to handle every air conditioning need . . . yet small enough to give consideration to your individual problems.

The new USAIRCO Warehouse and Finance Plan enables you to keep equipment on hand without tying up your capital! USAIRCO's 5-year warranty and service allowances are the most liberal in the industry! In addition to all these features, the United States Air Conditioning Corporation furnishes you with aggressive sales promotion and dealer aid materials, generous advertising and promotional allowances!

Best way I know of to get your full share of the growing air conditioning market is to line up a USAIRCO distributorship. Just drop a line to me, John Craig, and I'll send you all the details!"

UNITED STATES AIR CONDITIONING CORPORATION

MINNEAPOLIS 14, MINNESOTA *Export: 13 E. 40th St., New York 16, N.Y., U.S.A.*

J. N. CRAIG, MANAGER, PACKAGED REFRIGERATION DIVISION
UNITED STATES AIR CONDITIONING CORPORATION, MINNEAPOLIS 14, MINNESOTA

I would like the complete story on "a two-sided partnership", the usAIRco distributor plan.

Name of Company_____

Address_____

City_____ State_____

By_____

usAIRco
40 YEARS OF AIR CONDITIONING

Refrigeration Problems

and their solution

by Paul Reed

For Service and Installation Engineers

Paul Reed

A Turkey Processing Plant (1)

Question:

About three years ago, we furnished and installed the refrigerating equipment to freeze and store 1,000 lbs. of turkeys a day, and it has given very little trouble. Now however, this customer's father-in-law is coming in with him and furnishing a lot more money, so they are going to expand.

They figure on not only increasing their flock, but also they want to build a processing plant big enough that they can buy turkeys from some of the other turkey farms around here. Seems that this father-in-law has an "in" with one of the big grocery chains.

Anyway, they want a plant with a capacity of freezing and storing as much as 10,000 lbs. of eviscerated turkeys per 24 hours. They have practically turned the job over to us, and expect us to design the whole plant, including choosing, furnishing, and installing the equipment.

Not only that, but they want us to find out and advise them on the temperatures at which the birds are to be frozen and stored. They know that they want to ship the birds eviscerated, oven-ready, frozen, and sealed in cellophane. The father-in-law likes the idea of using ammonia as the refrigerant, but won't insist if we decide to use "Freon."

So it's pretty much up to us, and we don't know too much about it. We would like to have your advice on what temperatures to carry, what type of freezer to use, which refrigerant, and any other information that will help us.

Answer:

It appears you have a nice job, but it also sounds as if you are being saddled with a great deal of responsibility. Before ordering the equipment or otherwise obligating yourself, it would be wise for you to have a written and signed agreement as to temperatures, number of turkeys to be handled, freezing time, and other operating conditions. Otherwise, misunderstandings could cost you a good deal of money and the goodwill and friendship that these people now seem to bear you.

For example: they want to freeze a maximum of 10,000 lbs. of turkeys a day. But how long do they expect to store them? Will they ship 10,000 lbs. every day, or every week? On the answer to this will depend how large the frozen storage room or rooms must be, and what size refrigerating equipment will be required for frozen storage?

DRESSING THE TURKEYS

There are many processes used in plucking, cooling, drawing, wrapping, and freezing poultry. The author certainly could not qualify as an expert in that specialized field, and can only give you his general impressions and the results of his few observations of turkey processing plants.

In your place, however, and on the basis of his limited knowledge and experience, he would start on the following assumptions.

First the birds are slaughtered and bled. They are dipped in a tank of 170° to 180° F. water to loosen the feathers before plucking. (For this many birds, it would doubtless pay to use a plucking machine, having rubber fingers on a revolving drum.) Final plucking and removal of pin feathers could be done by hand, but in some plants, the birds are dipped in hot wax. As soon as they cool in the room air, the wax is stripped off, taking the pin feathers and down with it. In some plants a flame is used to singe off the down.

All of the above is done in ordinary room temperatures, and the bird still has its body heat and is probably at a temperature of around 100° F. The next step is to cool it down to about 33° to 35° F.

COOLING THE DRESSED BIRDS

A simple but satisfactory method of doing this is to hang the birds in a cooler similar to the ordinary meat storage cooler maintained at a temperature as close to 32° F. as is feasible with finned-type evaporators operating on a self-defrosting cycle. There is some advantage in maintaining about 30° in the cooling room, but it requires special defrosting equipment, and in the author's opinion, is not justified.

The birds should be hung separately, without touching one another. Not only does this permit free air circulation and rapid cooling, but it lessens the possibility of marring the appearance of the skin of the bird.

The blower coils for the cooling room must be selected with a great deal of care. They must have sufficient refrigerating capacity to remove a product load of about 51.4 B.t.u. from each pound of product. (Note that more than 10,000 lbs. will have to be cooled, for at this stage, the birds will have been dressed but not eviscerated.)

This product load will have to be absorbed in not more than 20 hours, and preferably in 12 to 15 hours (overnight) to be sure that the birds are down to 35° before being taken out of the cooling room.

The evaporators should be selected on the basis of an 8° to 10° TD, so that they will maintain a high humidity in the cooler. The "bloom," or fresh appearance of the skin of the turkey is very important in its saleability. If blower-type evaporators are used, the c.f.m. should not be greater than twice the internal volume of the cooler in cubic feet.

In selecting the evaporators, the heat leakage load of the cooler itself must of course be taken into consideration; but as the turkeys will come into and leave the cooler on an overhead conveyor, the service load will be low.

Instead of cooling the dressed birds as above described, some plants cool them by immersing them in cold water, ice slush or by spraying them. By these methods, the birds can be cooled to 33°, 35° in less than one half the time required by the air method.

This is an advantage, in that the birds can be slaughtered, dressed, cooled, drawn, and bagged, ready for the freezer in one work day, whereas with the air cooling methods the dressed birds must be kept in the cooler at least 8 to 10 hours, and probably overnight.

The wet methods of cooling have their disadvantages also. It is difficult to maintain good sanitation and cleanliness. The water must be changed often. Moreover, the original cost and the maintenance cost of the water-cooling equipment is apt to be higher than of the air-cooling equipment of comparable capacity.

PREPARING FOR THE FREEZER

The next step, after the turkeys are down to 35° (inside temperature, "through-and-through," not just the skin temperature) they will go in to the room where they are finally prepared for freezing. There they will be drawn, feet and head removed, washed and carefully inspected for pin feathers, down, or blemishes of any kind.

When they go into the bag, the birds must be clean, fresh, and appetizing in appearance—in short, "oven-ready." Most processors tuck the neck and legs inward and stuff the heart, liver, and gizzard, wrapped in a small piece of cellophane or wax paper, into the body cavity.

The bag should fit tightly over the bird, so as to exclude as much air as possible. Whatever the material is of which the bag is made, it should be moisture-vapor proof, transparent, and remain tough at low temperature. It should be tightly tied or heat sealed so as to be air tight.

(To Be Continued)

S. & R. Appoints Xavier Canadian Representative

NEW YORK CITY—S. & R. Soda Fountain Mfg. Co. here has announced the promotion of George J. Xavier to factory representative for all of Canada. S. & R. does custom manufacturing of soda fountains and food service equipment.

Non-Waxing — Foam-Resistant — unexcelled for all *low*-temperature applications.

Unmatched Stability — under all conditions of refrigerant dilution, heat and pressure.

Specified: by nearly all original equipment manufacturers.

Your Wholesaler Has It!

Distributed nationally by Virginia Smelting Company, Dept. 63, West Norfolk, Virginia.

VIRGINIA Chemicals

ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE
SUNISO REFRIGERATION OILS

KRAMER

LARGE — Curvette

with the

HINGED PAN

for easy access

- Built-In Heat Exchanger
- NO RUSTING — polished aluminum casing

WRITE NOW FOR BULLETIN C-192

KRAMER TRENTON CO. • Trenton 5, N.J.

Refrigerator Sales by 15 NEMA Firms Reach Total of 175,557 Units In Nov.

Summary for November and First Eleven Months, 1954
Complete Electric Household Refrigerators Only—Sales by Sizes—Units

NOVEMBER (15 Companies)

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 4 cu. ft.	....	....	....	....
2. 4 cu. ft.	1,008	....	279	1,287
3. 5 cu. ft.	32	....	1	33
4. 6 cu. ft.	1,747	....	387	2,134
5. 7 cu. ft.	12,172	73	1,623	13,868
6. 8 cu. ft.	33,549	83	4,592	38,224
7. 9 cu. ft.	20,600	50	2,459	23,109
8. 10 cu. ft.	25,089	274	1,224	26,587
9. 11 cu. ft.	28,461	104	2,798	31,363
10. 12, 13 cu. ft. and up	38,123	66	763	38,952
11. Total	**160,781**	**650**	**14,126**	**175,557**
Refrigerators Having Two Exterior Doors (All Sizes Included In Above)	**19,355**	**42**	**792**	**20,189**

FIRST ELEVEN MONTHS, 1954 (15-16 Companies)

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. Less than 4 cu. ft.	....	....	....	....
2. 4 cu. ft.	17,309	1	1,176	18,486
3. 5 cu. ft.	432	26	152	610
4. 6 cu. ft.	35,757	205	10,974	46,936
5. 7 cu. ft.	201,943	7,007	21,523	230,473
6. 8 cu. ft.	674,565	12,682	71,676	758,923
7. 9 cu. ft.	478,948	7,513	39,099	525,560
8. 10 cu. ft.	522,622	16,702	18,758	558,082
9. 11 cu. ft.	471,132	7,158	17,557	495,847
10. 12, 13 cu. ft. and up	443,730	4,811	11,489	460,030
11. Total	**2,846,438**	**56,105**	**192,404**	**3,094,947**
Refrigerators Having Two Exterior Doors (All Sizes Included In Above)	**341,992**	**1,694**	**8,842**	**352,528**

Participating companies: Admiral Corp.; Appliance & Electronics Div., Avco Mfg. Corp. (Crosley & Bendix Divs.); Deepfreeze Appliance Div., Motor Products Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Gibson Refrigerator Co.; Hotpoint Co., Div. of General Electric Co.; International Harvester Co.; Kelvinator Div., American Motors Corp.; Norge Div., Borg-Warner Corp.; Philco Corp., Appliance Div.; Quicfrez, Inc.; Seeger Refrigerator Co.; Servel, Inc.; Westinghouse Electric Corp.; A. J. Lindemann & Hoverson Co. (out 2-1-'54).

Nov. Refrigerator Sales By NEMA Firms Up 25%

NEW YORK CITY — November sales of household refrigerators by 15 firms reporting to the National Electrical Manufacturers Association were 25% higher than for the same month in 1953.

The reporting firms sold 175,557 units in November as compared with 139,511 the previous year. Of the November total, 160,781 units were sold in the United States.

For the first 11 months, total sales were 7% behind the same period in 1953, though sales in the United States were only 4% behind the previous year's figure.

New Jersey State RSES Will Meet Feb. 5 to 6

ASBURY PARK, N. J.—Fourth annual convention of the New Jersey State Association, RSES, was held here Feb. 5 and 6.

"Service Operations on Refrigerated Automatic Vending Machines" were outlined by Alan S. Decker, general manager of Heat-X. M. S. Angier, manager of the Heat Pump Section of the Westinghouse Air Conditioning Div., discussed "Residential Heat Pumps."

"Development of the Automatic Defrost Electric Refrigerator" was reviewed by William A. Mackie, eastern service manager for Westinghouse, and John H. Spence, service manager, Hussmann Refrigerator Co., explained "Differences In Characteristics Between 'Freon-12' and 'Freon-22' as it Applies to Low Temperature Frozen Food Merchandising Fixtures."

Fourth Annual
Trade Show and Convention
of
Institute of Surplus Dealers, Inc.
FEBRUARY 20, 21, 22, 1955
212 AAA Armory
62nd St. & Columbus Ave.
New York City, N. Y.
A Few Booths Still Available
For Information
Write, Wire or Phone Inquiries to:
Institute of Surplus Dealers
673 BROADWAY, NEW YORK CITY, N. Y.
ALGONQUIN 4-4638

Philadelphia Show--

(Concluded from Page 1, Col. 5)

come up with innovations that will put them into the air conditioning picture. There were a number of water chillers adapted for integration with forced hot water systems, baseboard heating-and-cooling systems, and a forced-air steam convector system with independently operating room units under thermostatic control.

The heat pump, of course, is now a well-accepted item, but the displays of this product (and some controls for use with it) demonstrated the kind of advances that have made the heat pump the accepted commercial product it is today. Some of the exhibits also offered evidence that the heat pump has a market in areas heretofore believed out of its reach.

Norge Realigns Sales Organization Into Five Regions

CHICAGO—Realignment of its sales organization into five geographical divisions has been announced by Norge, a subsidiary of Borg-Warner Corp.

Norge formerly had two divisions. The five new divisions are the eastern, southeastern, midwestern, southwestern, and western, with headquarters at Philadelphia, Atlanta, Chicago, Dallas, and Los Angeles, respectively.

C. M. Hoover is midwestern sales manager; V. E. Wallingford, southwestern; R. H. Pizor, western; and R. E. L. Tolbert, southeastern. An eastern sales manager was to be announced dater.

Harold Bull, director of distribution, said new divisional sales managers will direct the activity of regional managers in 25 regions. Each regional manager will call on three or four distributors.

"The fact that Norge doubled its business in 1954, and anticipates continued growth in 1955 has made it necessary to realign the field organization. It will permit closer liaison with distributors," Bull explained.

ASHAE Technical Sessions--

(Concluded from Page 1, Col. 2)

were installed at the society's annual banquet held Wednesday evening, Jan. 26.

HAINES IS PRESIDENT

John E. Haines, vice president of Minneapolis-Honeywell Regulator Co., is the new ASHAE president. John W. James is first vice president; Peter B. Gordon, second vice president. Prof. E. R. Queer was re-elected treasurer.

Elected to a three-year term on the Council were B. W. Farnes, Cary B. Gamble, Walter A. Grant, and D. M. Mills. Chosen for a one-year term was R. T. Kern.

Five were elected for three-year terms on the Committee on Research: Ray C. Chewning, Prof. W. S. Harris, N. B. Hutcheon, Prof. B. H. Jennings, and R. A. Miller.

Charles S. Leopold, well known consulting engineer, was honored at the Philadelphia meeting by presentation of the F. Paul Anderson medal, and 50-year scrolls went to S. R. Lewis, H. C. Meyer, Jr., and W. R. Stockwell.

AIR FILTER TESTING

Controversial topic of air filter testing aroused most interest and discussion at the first technical session when a paper entitled "Evaluation of Panel-Type Air Cleaners by Means of Atmospheric Dust" was presented by W. T. Van Orman of Goodyear Tire and Rubber Co.

"The problem of atmospheric air cleaning is largely one of removing finely divided and highly dispersed carbonaceous matter, commonly called soot or smoke," said Van Orman, who had prepared the paper with the help of H. A. Endres and R. P. Carter, also of Goodyear.

"Therefore, air cleaning devices should be evaluated by means of atmospheric dust containing the normal concentration of soot or smoke," he declared.

"Self-charging electrostatic air cleaners offer an effective and economical means of removing highly dispersed carbonaceous particles and other dusts normally present in the atmosphere, when used in conventional forced draft heating and air conditioning systems," Van Orman contended.

Objection to the usual single pass basis of testing filters was also raised by Van Orman, who declared that "this is not in accordance with normal air heating or cooling procedure where a major portion of the air is recirculated repeatedly."

EFFECTS OF WEATHER ON RESIDENTIAL SYSTEMS

Among other papers of wide interest was one describing "Effects of Weather Conditions on Cooling Unit Operation in a Residence" by H. T. Gilkey, W. S. Stoecker, and Prof. S. Konzo of the University of Illinois.

"Cycling the blower with the compressor produced lower room-air humidities than did continuous blower operation," concluded the authors of this paper, which reported another phase of the investigation in Warm Air Heating Research Residence No. 2 under a cooperative agreement between the National Warm Air Heating and Air Conditioning Association and the Engineering Experiment Station of the University of Illinois.

"Even during periods of low outdoor humidity, the amount of water condensed from the air circulated through the cooling unit was greater with cyclic blower operation than it was in more humid weather with continuous blower operation," the investigators indicated.

"Although cycling the blower with the compressor would seem to be desirable from the standpoint of lower indoor humidity, the possibility of discomfort due to lack of air circulation when the blower is not operating must be considered," they also commented.

In another paper about "Air Conditioning of Multi-room Buildings," several advantages for dual-duct systems were claimed by R. W. Waterfill, vice president of Buensod-Stacey, Inc.

Performance, first cost, and operating costs were compared by Waterfill for the single duct primary system, dual-duct system with one fan, and dual-duct two-fan system.

OTHER TECHNICAL PAPERS

Other technical papers presented at the ASHAE sessions included the following:

"Circuit Analysis Applied to Load Estimating," "Preliminary Studies of Heat Removal by a Cooled Ceiling Panel," "Paths of Horizontally Projected Heated and Chilled Air Jets," "Ventilation Requirements for Cigarette Smoke," "A Rapid General Purpose Centrifuge Sedimentation Method for Measurement of Size Distribution of Small Particles."

"Measurement of Angular Emissivity," "Selection of Outside Design Temperature for Heat Load Estimation," "A Theoretical and Experimental Study of Liquid-to-Liquid Heat Transfer in Hot Water Heaters," "Gas Is an Important Factor in the Thermal Conductivity of Most Insulating Materials," and "Solar Radiation During Cloudless Days."

TV Ad Probe--

(Concluded from Page 1, Col. 3)

hear the jury charge. Afterwards, Silver asked the representatives to meet with him later and select a committee to set up industry standards.

Silver said one of the promotional practices being investigated is that of advertising merchandise at "ridiculously low prices" with no intention of selling it. He claimed that by sales trickery, consumers are then switched to more costly articles.

Television and radio promotions of 15 firms were investigated, according to Silver. He explained that policemen and policewomen, posing as residents of apartments, answered the ads. When a salesman called on them, his "pitch" was recorded on tape recorders.

One concern advertised a sewing machine at $26.50, Silver said. When a salesman for the firm called on police couples, he found fault with the machine, then offered to knock $50 off the price of a $189.50 model.

Using practices like this, the company sold 3,500 machines last year for about $600,000, Silver asserted. He said only 36 persons could be located who were able to purchase the $26.50 model.

NEW PRODUCTS?

Turn to "What's New" Page for useful information on new products. Use Key No. for fastest service.

Coolerator Factories' Inventory Plants I and II Duluth, Minn.

Offer

Over $1,000,000 Inventory of Refrigerator and Freezer Parts including

Tecumseh compressors—1/8 h.p. through 3/4 h.p., Cutler-Hammer refrigerator thermostats, Bundy tubing, copper tubing, freezer baskets, refrigerator and freezer hardware, aluminum cold plates, Morrill 3-watt and 6-watt fan motors, finned condensers, plate condensers, cold rolled steel, galvanized steel, hot rolled steel, paint, gaskets, wire shelving, porcelain crisper and meat pans, wiring harnesses, insulation, packing materials, screws, nuts, bolts, washers and fasteners.

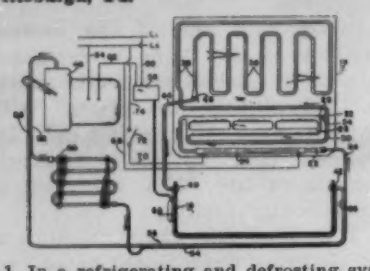
All Parts in New Condition

Contact R. E. Deaux
Box 399, Duluth, Minn.
or telephone Market 4-5712
for details and appointments.

PATENTS

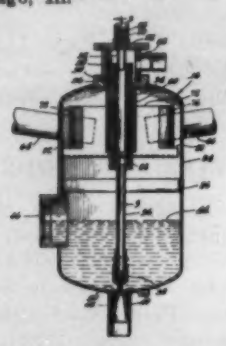
Week of October 19 (Continued)

2,691,871. EVAPORATOR STRUCTURE IN REFRIGERATION APPARATUS. Jules N. Saler, Springfield, Mass., assignor to Westinghouse Electric Corp., East Pittsburgh, Pa.



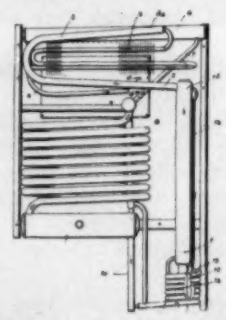
1. In a refrigerating and defrosting system, the combination of a refrigerant evaporator comprising superimposed sheets, first and second refrigerant passages each having inlet and outlet ends and formed by and between said evaporator sheets, a compressor, a condenser, first conduit means for conveying compressed refrigerant from said compressor to said condenser, second conduit means including a flow impeding device for conveying refrigerant condensed by said condenser to the inlet end of said first refrigerant passage, third conduit means for conveying refrigerant from the outlet end of said refrigerant passage to said compressor, said third conduit means having a portion thereof arranged in heat exchange relationship with the refrigerant compressed by said compressor, a storage vessel formed by and between said evaporator sheets, said first refrigerant passage having the outlet end thereof communicating with said storage vessel, a first outlet passage communicating at one end with a lower portion of said storage vessel and at its other end with the inlet of said second refrigerant passage, a second outlet passage communicating at one end with an upper passage communicating at one end with an upper portion of said storage vessel and at its other end with said first outlet passage, said second outlet passage having a restriction therein, the construction and arrangement being such that liquid refrigerant accumulates in said storage vessel during refrigerating operation of said system, and means for applying heat to the refrigerant flowing through said first refrigerant passage to vaporize at least a portion of said refrigerant to increase the preasure in said storage vessel whereby the refrigerant liquid contained therein is forced out of said vessel through said lower outlet passage, said storage vessel containing sufficient refrigerant liquid to flood said second refrigerant passage and spill over into said third conduit means.

2,691,873. OIL COLLECTOR IN SURGE TANK OF REFRIGERATION SYSTEM. Sigmund P. Skoli, Elmwood Park, Paul T. Moon, Lombard, and Chester Witt, Deerfield, Ill., assignors to Mojonnier Bros. Co., Chicago, Ill.



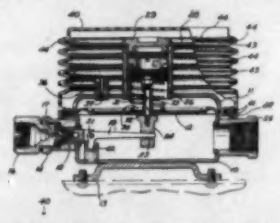
5. In a refrigeration system, a surge tank adapted to contain a body of liquid refrigerant in a lower portion thereof, conduit means entering an upper portion of said tank and extending into said lower portion, said conduit means being adapted to be connected to a source of liquid refrigerant under pressure, injector means communicating with said conduit means and said lower portion of the tank for circulating liquid refrigerant from said conduit means and the lower portion of said tank to an evaporator, means providing an inlet in an upper portion of said tank for refrigerant in gas and liquid phases returning from an evaporator, means providing a restricted passageway surrounding a portion of said conduit means in the upper portion of said tank for permitting refrigerant in the gas state to escape from the tank, said portion of said conduit means including a heat exchanger element within said chamber and above the level of said body of liquid refrigerant to effect an exchange of heat between the escaping gas refrigerant and the liquid passing through said conduit means, and means for directing a portion of the liquid refrigerant returning to said tank through said inlet into the gas refrigerant escaping through said passageway so that any oil in said last mentioned liquid refrigerant is removed from said tank.

2,691,874. ABSORPTION REFRIGERATING APPARATUS. Rene Martin, Casablanca, Morocco.



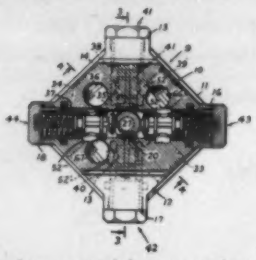
1. A refrigerating apparatus of the absorption type, comprising a heating tube, a boiler arranged concentrically with said tube, a vapor tube, issuing from the upper portion of the boiler, said vapor tube with a V-shaped large section, with superimposed and substantially horizontal branches starting from the upper portion of the boiler, baffles, placed in the lower branch of said tube, a condenser placed between the two branches of the V-shaped vapor tube and connected with the upper portion of said tube, an evaporator to be placed in the chamber to be refrigerated, an absorber in communication with said evaporator, a tank in which the absorber opens, a heat exchanger comprising two tubes placed concentrically to one another, the outer tube connected with the upper portion of the absorber at one end and at the other end with the under portion of said boiler, a conduit between the tank and the inner tube of the heat exchanger, a thermal pump welded on the heating tube and arranged in heat conductive relation therewith, said thermal pump being connected at its upper portion with the inner tube of the heat exchanger, said latter being wound in spirals around the lower portion of the heating tube, and a small diameter tube connected with the upper portion of the thermal pump rising along the boiler and connected with the upper portion of said boiler.

2,691,988. SEALED PRESSURE REGULATOR. Albert J. Weatherhead, Jr., Shaker Heights, Ohio, assignor to The Weatherhead Co., Cleveland, Ohio, a corporation of Ohio. Application June 21, 1950, Serial No. 169,330. 5 Claims. (Cl. 137—377.)



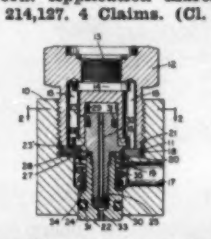
1. A sealed pressure regulator comprising a body including a casing having an opening, inlet and outlet ports in said casing, a valve for said inlet port, mechanism for opening and closing said valve, said mechanism comprising a diaphragm extending across said opening and forming with said casing a regulating chamber, valve operating means connected to said valve and to said diaphragm, and a spring engaging said mechanism and said body; a port in said diaphragm, a spring-biased relief valve closing said port, and a closure making sealed engagement with said body and disposed to form with said body and diaphragm a normally sealed chamber, said closure including a thin-walled circumferentially corrugated member of rubber-like material movable in response to pressure changes within said sealed chamber caused by fluctuation of said diaphragm whereby the volume of the chamber defined by said diaphragm, regulator body, and flexible closure remains substantially constant as said diaphragm flexes within said body, said closure being arranged to open said sealed chamber to atmosphere when pressure in said chamber increases by a predetermined amount above atmospheric pressure.

2,691,990. SELECTOR VALVE. Benjamin F. Ashton and John P. Frain, Kingston, N. Y., assignors to Electrol Inc., Kingston, N. Y., a corporation of Delaware. Application July 31, 1952, Serial No. 301,934. 7 Claims. (Cl. 137—622.)



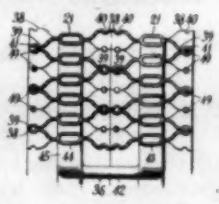
1. A valve comprising a casing having a bore therein and a pair of ports communicating with said bore in spaced relation, a sleeve slidable lengthwise of said bore and having a valve seat at one end interposed between said ports, a valve member reciprocable axially of said sleeve and having a valve head movable into and out of engagement with said seat, actuating means adjacent to the valve head to move it into engagement with said seat and displace said sleeve axially along said bore, means biasing said valve head away from said seat and toward said actuating means, means yieldingly resisting displacement of said seat by said valve head and enabling the seat to move with said valve head upon engagement therewith, and means limiting movement of said seat toward said valve head to enable the valve head to move away from said seat.

2,692,114. VALVE. Edward F. Fullwood, Madison, Wis., assignor to Air Reduction Co., Inc., New York, N. Y., a corporation of New York. Application March 6, 1951, Serial No. 214,127. 4 Claims. (Cl. 251—282.)



1. A reversible flow circuit fluid control valve comprising a valve housing, a cavity therein, a valve cap threaded into said cavity to form a valve chamber, valve inlet and outlet ports communicating with said valve chamber, a valve seat between said valve ports having a valve seat opening, a pair of cylindrical guide passages in substantially axial alignment with said valve seat opening and on opposite sides thereof, one of said passages being formed in said valve cap, the other of said passages being formed in said valve housing, a valve element having opposite cylindrical end portions slidable within said guide passages and a middle portion extending through said valve seat opening, said middle portion having an annular flange one face of which comprises a frusto-conical surface adapted to be engaged by said valve seat, O-ring gasket means carried by said valve element cylindrical portions affording a fluid tight seal in each of said guide passages effectively excluding chamber fluid from the opposite ends of said valve element, and means exposing the opposite ends of said valve element to the pressure external to said valve chamber, said valve element being in two separable parts, one of said parts including one of said cylindrical valve element portions and being disposed on the side of said valve seat opposite to said frusto-conical valve seating surface, said cylindrical portion having a diameter larger than said valve seat opening and said other cylindrical portion having a diameter less than said valve seat opening such that pressure fluid introduced through either of said valve ports urges said valve element toward seated position.

2,692,119. SPIRALLY WOUND REFRIGERATION EVAPORATOR. Stanley H. Morse, Manitou Beach, Mich., assignor to Addison Products Co., Addison, Mich. Application Feb. 26, 1952, Serial No. 273,409. 5 Claims. (Cl. 257—248.)

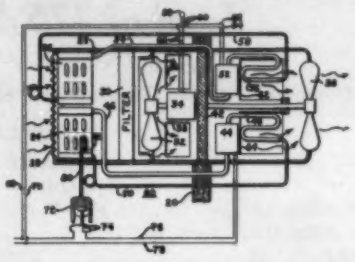


1. A heat exchange coil comprising a continuous length of tubing formed with integral fins extending lengthwise along diametrically opposed portions thereof, said fins being corrugated outwardly from the tubing to their margins into substantially sinusoidal formations of increasing amplitude, reentrant saddles formed in the crests of the corrugations, said saddles being located adjacent the margins of the fins and being aligned lengthwise thereof, wires positioned in said saddles and anchored to the ends of the fins, said tubing, fins, and wires being wound spirally into a coil having a plurality of convolutions, said wires engaging the saddles of the fins of adjacent convolutions and spacing and retaining said convolutions from displacement.

Week of October 26

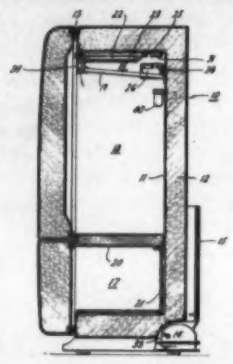
2,692,461. DUAL EVAPORATOR AIR COOLING APPARATUS. Sylvester M. Schweller, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application March 16, 1951, Serial No. 215,985. 6 Claims. (Cl. 62—4.)

1. A dual air conditioning apparatus for conditioning the air of an enclosure for producing human comfort including fan means for circulating air from the enclosure through the apparatus and returning the conditioned air to the enclosure, a first evaporator and a second evaporator located above the first evaporator in said circulating air, refrigerant liquefying means for supplying liquid refrigerant to and for withdrawing evaporated refrigerant from said first and second evaporators, and a thermostatic means having a thermostatic element clamped



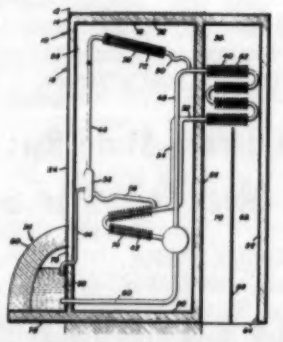
to the coldest portion of said first evaporator for disabling said first evaporator, and a room thermostat responsive to the temperature of the air in said enclosure for disabling said second evaporator.

2,692,482. MULTITEMPERATURE REFRIGERATOR. Malcolm G. Shoemaker, Doylestown, Pa., assignor to Philco Corp., Philadelphia, Pa., a corporation of Pennsylvania. Application June 7, 1951, Serial No. 230,357. 7 Claims. (Cl. 62—6.)



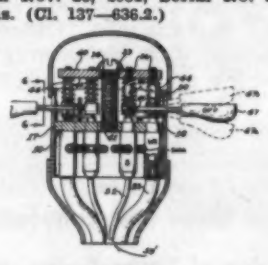
1. In refrigeration apparatus: a pair of partitions disposed in spaced relation and dividing the space within said apparatus into a cooling compartment, a frozen food storage compartment, and a fresh food storage compartment disposed adjacent said cooling compartment and adapted to be maintained at above-freezing temperatures; refrigerating apparatus including a pair of evaporator elements one of which is disposed in heat exchange relation with said cooling compartment and the other of which is disposed in heat exchange relation with said frozen food storage compartment, said evaporator elements being operative to maintain said compartments at their respective refrigerating temperature, said frozen food storage compartment being substantially isolated from either of the other compartments above-mentioned; means adapted to utilize air from said fresh food storage compartment in the removal of frost from the evaporator element of said cooling compartment, said last means comprising; air propelling means cooperable with the partition disposed between said fresh food storage compartment and said cooling compartment to produce a circulatory flow of air from said fresh food storage compartment around said last-mentioned partition and into and through said cooling compartment; and means for interrupting the normal operation of at least the evaporator element of said cooling compartment during a defrosting operation.

2,692,483. REFRIGERATION UNIT UTILIZING SOLAR ENERGY. Arthur W. Hedlund, Minneapolis, Minn. Application Jan. 5, 1951, Serial No. 204,665. 5 Claims. (Cl. 62—119.5.)



1. A refrigerating apparatus comprising a wall section having a chamber therein, an absorption-type refrigerating system including a separator, a condenser, and an absorber disposed in said chamber, said system also including an evaporator coil disposed on one side of the wall section and a generator disposed on the other side of the wall section, said generator including an exposed transparent wall having optical properties adapted to collect and direct solar energy striking the same into the interior of the generator.

2,692,616. BEVERAGE DISPENSING VALVE. Alfons Glassenhart, Phoenix, Ariz., assignor to Carl Glassenhart and Walter A. Glassenhart, Phoenix, Ariz. Application Nov. 26, 1951, Serial No. 258,136. 4 Claims. (Cl. 137—636.2.)



1. In a beverage dispensing valve structure having, a water valve, a soda water valve, and a plurality of flavor dispensing valves, a common operating lever providing the sole means for alternately opening one or the other of said water or soda valves, a single control lever directly connected to actuate each of said flavor valves, and means interconnecting said flavor valve control levers with said soda water valve control lever so that whenever a flavor valve lever is actuated said soda valve lever is also actuated.

(Continued on next page)

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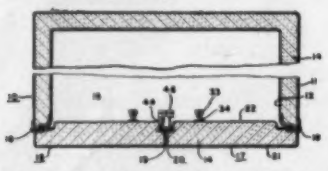
PATENTS

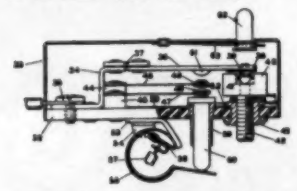
(Continued from preceding page)

2,692,809. REFRIGERATING APPARATUS. Keith K. Kesling, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 21, 1952, Serial No. 272,751. 4 Claims. (Cl. 312—214.)



1. In combination, walls forming a cabinet having a compartment therein, one of said walls having an opening providing access to the interior of said compartment, doors normally closing said compartment access opening, said doors having portions thereof abutting said one cabinet wall and having adjacent mating edges forming a joint exposed to the interior of said compartment and extending across the access opening thereof, a rubber-like gasket on each of said doors, each gasket including a mounting portion secured to the door and an integral resilient portion extending along the mating edge of the door upon which it is mounted, a substantially rigid member associated with the resilient portion of each of said gaskets, said member having operating means engageable with a means on said cabinet upon closing the doors for biasing the resilient portion of the gaskets in a direction outwardly relative to the mating edge of the doors into sealing engagement with one another, each of said gaskets extending beyond the top and the bottom of said compartment access opening at the joint between said doors and overlappingly engaging said one cabinet wall when the doors are closed to form without the aid of additional means a continuous seal throughout the height of the opening, and each of said doors being movable independently of the other to break the seal at said joint and open a portion of said compartment access opening.

2,692,930. THERMOSTATICALLY OPERATED SWITCH. Earnest J. Dillman, Detroit, Mich., assignor to Detroit Controls Corp., a corporation of Michigan. Application Oct. 27, 1950, Serial No. 192,484. 16 Claims. (Cl. 200—122.)



1. In a switch structure, first and second contact arms, means cooperable with said second contact arm when in one position to bias the same toward a switch closed position, means engageable with said first contact arm and operable to move the same in one direction against said second contact arm and the force of said first-named biasing means, means operable to bias said second contact arm away from said first contact arm upon predetermined movement in said one direction to cause said contacts to open, and adjustable means cooperable with said last-named biasing means to vary its relation to said second contact arm to determine the extent of said predetermined movement required to render the same operable.

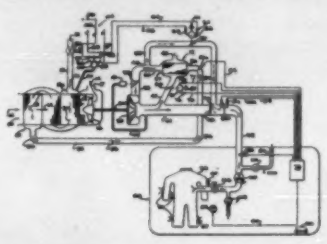
Week of November 2

2,693,009. REFRIGERATOR DOOR GASKET. Howard G. Beck, Wabash, Ind., assignor to The General Tire and Rubber Co., Akron, Ohio, a corporation of Ohio. Application Dec. 17, 1949, Serial No. 133,651. 5 Claims. (Cl. 20—35.)

1. A mounting for joining panel edges comprising a linear strip of rubberlike material with opposing grooves therein to receive the panel edges, a wedge-shaped opening having lips on the opposite side edges thereof intermediate the grooves, and a separate linear wedging element of rubberlike material for insertion into said wedge-shaped opening so that after the panel edges have been fitted into the opposing grooves said wedging element can be inserted into said wedge-shaped opening to thereby expand and form the body of said linear strip into tight gripping engagement with the panel edges, said wedging element of rubberlike material being formed with a body portion proportioned and dimensioned to enter into said wedge shaped opening to spread said opening and interlock with said lips and being formed with an integral, hollow, bulbous structure extending outward from the body of the strip.

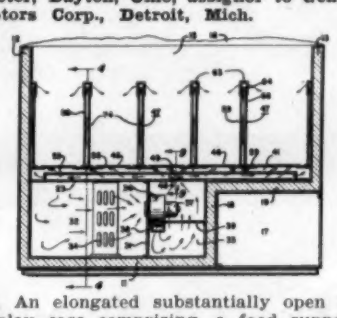
2,693,088. REFRIGERATION AND VENTILATION DEVICE. Frederick H. Green, Palos Verdes Estates, Calif., assignor to The Garrett Corp., Los Angeles, Calif., a corporation of California. Application Aug. 1, 1952, Serial No. 302,270. 19 Claims. (Cl. 62—6.)

1. Apparatus for conditioning compressed air from a source of compressed air to an enclosure, comprising: first cooler means having first and second passage means in heat transfer relation to each other; second cooler means having first and second passage means in heat transfer relation to each other; means for directing a flow of compressed air from said source through the first passage means of the first cooler means and thence to the first passage of the second cooler means; means for directing a flow of coolant through the second passage means of the first cooler means for cooling the compressed air flowing through the first passage means of the first cooler means; fan means for effecting a flow of coolant through said second passage



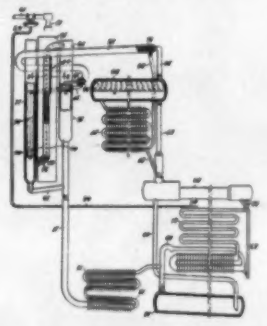
means of the first cooler means; an expansion turbine having an inlet and an outlet; means operably connecting said turbine with said fan; passage means connecting the second cooler means with the inlet of said turbine whereby compressed air passing through the second cooler means is conducted to said turbine; turbine outlet passage means connecting the outlet of said turbine with said enclosure; a turbine outlet branch passage connecting said turbine outlet passage means with the second passage means of the second cooler; a branch passage branching from the passage from the second cooler to the turbine and connected with the turbine outlet passage; a check valve in the turbine outlet passage upstream of the junction thereof with the second mentioned branch passage; valve means controlling the flow of air through said second mentioned branch passage; means for controlling said valve comprising pressure responsive switch means responsive to variations in the differential of pressure between that of the air supplied to the system at the first mentioned cooler means and ambient atmosphere; a valve controlling the turbine outlet branch passage; and temperature responsive means connected with the last mentioned valve means for controlling same.

2,693,089. OPEN-TOP DISPLAY REFRIGERATING APPARATUS. Wilford H. Teeter, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



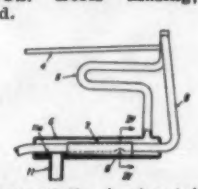
1. An elongated substantially open top display case comprising, a food supporting device inset within the open top of said case and dividing the interior thereof into an upper and a lower region, said device including longitudinally spaced apart hollow vertical flue forming elements extending transversely across the case and dividing said upper region thereof into a plurality of open top in said lower region of the case, means for circulating air cooled by said cooling means upwardly through said flue forming elements, means at the upper end portion of said elements for deflecting air egressing therefrom across said compartments to form a buffer blanket of cold air over foods stored therein prior to its return to the lower region of said case, the lower portion of at least one side edge of said flue forming elements being provided with an opening, means within said elements for restricting the flow of air therein to said deflecting means thereof, and means for directing air retarded by said restricting means out of said elements through the opening in said side edge thereof whereby the retarded air by-passes said blanket of air and is directly returned to said lower region of the case.

2,693,090. ABSORPTION REFRIGERATION SYSTEM. Wilhelm Georg Kogel, Stockholm, Sweden, assignor to Aktiebolaget Elektrolux, Stockholm, Sweden, a corporation of Sweden.



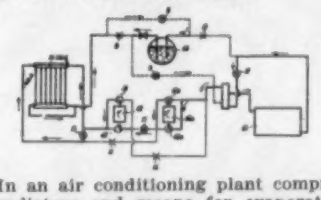
1. An absorption refrigeration apparatus, a circuit for circulation of absorption solution including a vapor expulsion unit comprising a vertically extending imperforate pump pipe having an inlet at one level and an outlet at a higher level, heating means for heating said vapor expulsion unit, said pump pipe including a heat receiving and vapor forming part intermediate the inlet and outlet thereof which is heated by heat derived from said heating means to cause expulsion by vapor from solution in said pipe and raise liquid therein by vaporlift action, means for operating said heating means to effect heating of said vapor expulsion unit at a first rate of heat input or a second larger rate of heat input, the cross-sectional area of said pump pipe from the inlet to the outlet thereof being such that raising of liquid by vapor-lift action through a pipe of that size can only be effected when heating of said vapor expulsion unit by said heating means is effected at the second larger rate of heat input, means associated with said pump pipe to provide an upwardly extending imperforate fluid passage having an inlet at said one level and an outlet at said higher level for raising liquid therein when heating of said vapor expulsion unit by said heating means is effected at the first rate of heat input, said upwardly extending imperforate fluid passage also including a heat receiving and vapor forming part intermediate the inlet and outlet thereof which is heated by heat derived from said heating means to cause expulsion of vapor from solution in said passage and raise liquid therein by vapor-lift action, said pump pipe and said passage each defining a path of flow for vapor in the heat receiving and vapor forming part thereof which extends upwardly therefrom and in which each longitudinal increment in the upwardly therefrom and in which each longitudinal increment in the upward path of flow for vapor always it at a successively higher level to provide a path of flow for raising liquid in which vapor always rises upwardly therein.

2,693,091. HEAT EXCHANGE UNIT OF AN ABSORPTION REFRIGERATING APPARATUS. Boris Masing, Adliswil, Switzerland.



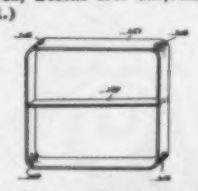
1. A substantially horizontal gas heat exchanger in combination with an evaporator and an absorber vessel, the exchanger having a first inner pipe, a second pipe interconnecting the vessel and the exchanger, the end of the second pipe in the exchanger being upwardly directed from the bottom thereof, a casing disposed on the inner pipe and in spaced relationship with the bottom of the exchanger, the casing having an opening in juxtaposition with the bottom of the exchanger and below the level of the protruding end of the second mentioned pipe in the exchanger, and the first inner pipe having an aperture coacting with the opening in the casing.

2,693,092. AIR CONDITIONING PLANT. Georges Labolle, Medea, Algeria.



1. In an air conditioning plant comprising radiators and means for evaporating and then compressing and condensing a cooling fluid, at least one radiator comprising a central tube nest and a complementary tube nest, a cooling fluid compressor for each of said tube nests, and valve controlled means for selectively connecting each of said tube nests with the inlet and outlet of the corresponding compressors.

2,693,246. AIR FILTER. Thomas W. Marcheck, Pittsburgh, Pa. Application Sept. 26, 1952, Serial No. 311,711. 4 Claims. (Cl. 183—51.)



1. An air filter unit constructed to be so mounted in a portion of a closed passage way as to cause the air to pass through two separate thicknesses of cloth comprising a frame having an outer rim of substantial width or thickness, a cloth bag constructed to snugly fully enclose the frame and a readily openable closure device secured to the portion of the bag positioned along one edge of the frame to permit the bag to be quickly removed from the frame for cleaning.

(To Be Continued)

Government Contracts

PROCUREMENT INFORMATION

The following is a list of proposed procurements issued by the various indicated U. S. Government procurement offices. This list is compiled and made available daily on a free pick-up basis. Prospective bidders may obtain complete bid sets by a request **to the puchasing officer under which the purchase is listed** in this Synopsis. Be sure to identify completely the bid invitation you wish by including in your request the item description, the invitation number or reference number and the opening date.

DEPARTMENT OF DEFENSE

It is not necessary to refer solely to the issuing office for additional data on a bid invitation issued by any of the following U. S. Army Ordnance Offices: Ordnance Tank Automotive Center; Detroit Arsenal; Frankford Arsenal; Picatinny Arsenal; Raritan Arsenal; Ordnance Ammunition Center, Joliet, Ill.; Rock Island Arsenal; Springfield Armory; Watertown Arsenal; and Watervliet Arsenal. Complete information on any purchase listed by any of those offices alone can be obtained from the Ordnance District Office nearest you. Its address is on file in your nearest Department of Commerce Field Office. Do not ask an Ordnance District Office for information on a purchase unless it is listed by one of the above-named offices.

Invitations for Bids numbers will be followed by the letter "B." Requests for proposals or quotations will be indicated in this column by the letter "Q" or, if numbered, the number will be followed by the letter "Q."

Description	Quantity	Invitation No.	Opening Date
Officer in Charge, Navy Purchasing Office, Washington, D. C.			
Heaters, ventilation, fin, tube, various sizes, for use in heating and ventilating systems aboard Naval Vessels, per spec Mil-H-16253A dated 24 April 1952 and amendment No. 2 dated 6 April 1954 Note-qty indicated is total of all size combined, the material called for under this specification is of a type on the navy qualified product list.	2902	IFB-600-355-55-S	23 Feb 55
Chilled water circulating 50 GPM at 60 PSIG.	74	(IFB-600-337-55-S)	23 Feb 55
Air cond salt water circulating 135 GPM at 30 PSIG.	37	(IFB-600-337-55-S)	23 Feb 55
Commanding Officer, Fort McPheerson, Georgia			
Furnish all plant labor equipment appliances materials perform all operations complete for installation of thirteen 15-ton package air conditioning units—one 5-ton remote condensing unit with cooling coil water cooling tower associated work as piping, wiring, install transformer bank-remove existing exhaust fans penthouses and replace roof - interior ceiling - third army headquarters Patton Hall, Fort McPherson, Georgia.	Job	(DA-09-177-55-41)	16 Feb 55
Furnish all plant labor equipment appliances materials perform all operations complete required for installation of one 7½-ton package air conditioning unit one 7½-ton water cooling tower and associated work as piping ductwork electrical work in building T-1127, Fort McPherson, Georgia.	Job	(DA-09-177-55-42)	16 Feb 55
General Stores Supply Office, 700 Robbins Ave., Philadelphia 11, Pennsylvania			
The invitations to bid herein listed have not been issued. They will be issued by the General Stores Supply Office within the next 10 days.			
Valve temperature regulating for ventilation heaters MIL Spec MILV 3155A/ships/Amend 1.	1175 ea.	(155-837-55B)	23 Feb 55

U. S. DEPARTMENT OF COMMERCE

Description	Quantity	Reference No.	App. Bid Date
Procurement Branch Civil Aeronautics Administration, Federal Building, N. Y., International Airport, Jamaica, N. Y.			
Filter Air Fiberglass 10 x 10 x 1".	3370 ea.	1-55-662B1	16 Feb 55
Filter Air Fiberglass 10 x 10 x 2".	1060 ea.	"	"
Filter Air Fiberglass 10 x 20 x 1".	750 ea.	"	"
Filter Air Fiberglass 20 x 25 x 2".	215 ea.	"	"
Filter Air Fiberglass 20 x 20 x 1".	1400 ea.	"	"
Filter Air Fiberglass 20 x 25 x 1".	340 ea.	"	"
Filter Air Fiberglass 24 x 24 x 1".	280 ea.	"	"
Filter Air Fiberglass 24 x 24 x 2".	230 ea.	"	"

CONTRACTS AWARDED THROUGH JAN. 31

General Services Administration, Business Service Center, 575 U. S. Courthouse, Chicago, Illinois

Water coolers.—493 ea., $49,466. Westinghouse Electric Corp., 1625 K St., N. W., Washington, D. C.

Oklahoma City Air Materiel Area, Tinker Air Force Base, Oklahoma City, Oklahoma

Cooler assy. AF 34-(601)-1831.—66 ea., $27,720.—Airesearch Mfg. Co., Div. of The Garrett Corp. 9851-9951 Sepulveda Blvd., Los Angeles 45, California.

Cooler assy. AF 34-(601)-1767.—552 ea., $106,580.—Clifford Mfg. Co., Div. Standard-Thomson Corp., 152 Grove St., Waltham, Mass.

Intercooler assy. AF 34-(601)-1835.—172 ea., $49,811.—The Trane Co., 2nd and Cameron Ave., La Crosse, Wisconsin.

Ships Parts Control Center, Mechanicsburg, Pa.

Repair parts for refrigeration equipment (N104S-34355) (P.R.-75-34355).—10565, $56,033.—Carrier Corp., 300 S. Geddes St., Syracuse, N. Y.

THE MASTER SERVICE MANUALS — — —

— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

BUSINESS NEWS PUBLISHING CO., DETROIT

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POSITIONS WANTED

SALESMAN WANTS position with a manufacturer of commercial refrigeration, air conditioners, domestic heating equipment or major electrical appliances. Twenty-eight years' experience as salesman, district and regional salesmanager in these lines. Not interested in a position for which this experience is not an essential qualification. Proven ability to establish and maintain sales of equipment designed for quality. Only four previous employers will indicate ability, stability and character. Will relocate or travel anywhere. Age 49. No outside interests and not interested in a side line or part time job on a commission basis. BOX A5151, Air Conditioning & Refrigeration News.

AIR CONDITIONING and commercial refrigeration service and installation man. Eight years of field experience and technical schooling. Contemplating change in near future. Will welcome all inquiries from reliable contractors. Address replies to BOX A5152, Air Conditioning & Refrigeration News.

WHO HAS an opening that has plenty of responsibility? Wholesale manager, general manager, or his assistant preferred. South or West only. Presently managing Carrier distributorship. Previous experience and training in sales and engineering, including three years with manufacturer. BOX A5155, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

EXECUTIVE ENGINEER—to head Compressor Division of nationally known Midwest manufacturing firm. Unusual organizational opportunity. Experience in hermetic sealed compressor design required. Send resume of education and experience. BOX A5149, Air Conditioning & Refrigeration News.

AIR CONDITIONING & refrigeration mechanic wanted by contractor in Richmond, Virginia. Experience in handling ammonia & Freon desirable, but competent, first class man in Freon only will be considered. Give qualifications, character references, salary expected, and resume of past 5 years employment in first reply. Write to BOX A5153, Air Conditioning & Refrigeration News.

AIR CONDITIONING & refrigeration application and sales engineer, with proven sales record, wanted by old established contractor in Richmond, Virginia. Give detailed qualifications, character references, salary expected, and resume of past five years employment in first reply. All replies confidential. Write BOX A5154, Air Conditioning & Refrigeration News.

SALES ENGINEER: Nationally known manufacturer of condensing units, packaged air conditioning, and residential heating and cooling units. Permanent position, salary, expenses, commission and car. Must be willing to travel. Dealer contact in Texas, Oklahoma. Experience in this field desired. State age, education, past connections in first letter. All of our employees know of this ad. BOX A5156, Air Conditioning & Refrigeration News.

SERVICE MANAGER, complete charge of air conditioning and refrigeration service operation of large metropolitan York distributor in middle Atlantic area. Send resume of education and experience. BOX A5157, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WILL PURCHASE 1954 brand name room air conditioners for cash. State make, models, quantity and prices. BOX A5158, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

BARGAIN: LESS than half regular price. New replacement hard rubber slide doors. Ace Model 1925-AG loxit style, size 19" x 25" long with stainless steel rollers and glazing strips. Price $7.99 each. JOHN HERREL & SONS, Inc., 244 Lear Street, Columbus 6, Ohio.

MAKE MONEY with the most compact self contained Kesco model K-40 12 foot head condensate water disposal unit designed for air conditioners, ice cube bins, drinking fountains. Only 9" high, 11" wide, 4½" thick. Complete with floodproof motor and switch. List $50.00. Order from your jobber or write KESCO PRODUCTS CORPORATION, P. O. Box 84, Springfield Gardens, New York.

ATTENTION SERVICEMEN: Save 25 to 50% on your refrigeration parts. Send for our catalog of values today. Here is only one of our money saving offers. 1¾" O.D. copper connections x 14¾" overall vibration eliminators, $4.65 each. Lot of 10, $4.00 each. WALTER W. STARR REFRIGERATION SUPPLIES, 2833 Lincoln Avenue, Chicago 13, Illinois.

BUSINESS OPPORTUNITIES

BUSINESS BUILDING, modern 3 bedroom apartment upstairs. Wonderful opportunity for someone experienced in package and central air conditioning and heating. Owner has franchise on only custom built equipment on west coast, located in fastest growing section. Priced to sell $28,500. MABEL WILLCOX, Broker, 626 25th Street, W. Bradenton, Florida.

MISCELLANEOUS

"SEALED UNIT Rebuilding-Basic Tools & Methods"—an instructive copyrighted manual giving complete details on economically equipping your shop to handle hermetic rebuilding. Exclusive trade secrets unavailable elsewhere. Mail postcard for descriptive folder. H. W. CUSTER, P. O. Box 98, Center Line, Michigan.

COMPONENTS FOR YORK'S NEW remotely installed "sealed circuit" air conditioners are shown in this picture. In left foreground is casing holding twin air-cooled condensing units, at rear left is the complete air handling system for the conditioned space. At right on standard are twin evaporators for use in existing forced warm air heating system. Refrigerant lines have "inner seals" that remain intact until connection has been completed.

York Remote Residential System--

(Concluded from Page 1, Col. 3)

to install the machinery of an air conditioning system outdoors, in a garage, a car port, in the attic, or even in a ventilated closet, are well known to architects, contractors, builders, refrigeration people, and to many homeowners," said a York spokesman. "Heretofore, however, such installations have been possible only with 'open' systems, not with hermetic air conditioning systems."

The York remotely installed sealed circuit air conditioner consists of two components hermetically sealed at the factory and separately installed in the field. The sealed lines from the evaporator are connected to the remote condensing system in a manner so ingeniously contrived that the inner seals protecting these lines remain intact until the connection has been completed.

This sealed circuit air conditioner for residential applications actually is comprised of two identical systems—two compressors, two air-cooled condensers in a single casing, and two remote evaporators or cooling coils mounted in an individual frame. When cooling is required, one system starts up and the other remains idle until additional capacity is needed.

This second system continues to operate intermittently according to load requirements. This "step-starting" as it is called requires a lower current inrush upon starting, a fact which the power companies wholeheartedly endorse, says York. Also, operating costs can be reduced because only one system is operating a great portion of the time.

Better humidity control is effected, it is said, because one system operates constantly except in very mild weather, thus continuously removing excess moisture from all the air passing through the evaporator. The second system comes on and lends a helping hand as needed.

These York remotely installed sealed circuit conditioners carry the York five-year protection plan, which applies only to hermetic systems, a factory spokesman said. A capillary tube is used to meter the refrigerant.

It isn't necessary to shut down the York system in the fall nor start it up in the spring, according to York officials, who point out that the system is ready to go any time it's needed.

Models are available with 2-hp. and 3-hp. condensing units. All systems are air cooled.

Predict 'One of Best' Years for York Though 1st Quarter Sales Dip

YORK, Pa.—Although sales and earnings of York Corp. in the first fiscal quarter ended Dec. 31 declined from year-ago levels, there are indications that 1955 will be one of the best years in the company's history, according to Stewart E. Lauer, president.

Reporting at the annual meeting that new orders increased substantially in January, Lauer said: "We think we will have no difficulty overcoming the bad results of the first quarter, and that we will probably come out with better results for the year than last year."

Lauer pointed out that the influx of orders in the first 24 days of January was eight times as high as the rate of early December.

And large orders for air conditioning and refrigeration jobs, in excess of $100,000 for a project, were received in the first quarter at an annual rate over twice that of a year ago, according to Ray K. Serfass, vice president of York's industrial division, who added:

"If the present trend continues, for the year York will do about twice the number of $100,000-plus projects it did last year."

First-quarter figures, not yet final, indicate that net loss may approach $400,000, Lauer reported. Sales, totaling close to $13 million, were off 25% from a year ago. These figures compare with net earnings of $381,290 and sales of $17.2 million in the first fiscal quarter of 1954.

For all fiscal 1954, earnings amounted to $2,912,894, equal to $2.12 a common share, and sales totaled $93.3 million.

Lauer said the company's inventory of packaged air conditioning equipment was reduced 40% from Sept. 30 through December as a result of production cutbacks.

However, York couldn't reduce its overhead enough to offset the drop in production, Lauer stated. "We couldn't cut back too far," he said, "because we wanted to get ready for this other nine months' business."

Airtemp To Emphasize Health Angle--

(Concluded from Page 1, Col. 2)

comfort and stress health, this industry will grow many, many times what it is today."

V. P. Black, vice president of Grant Advertising, Inc. and Airtemp account executive, confirmed that Airtemp plans to push the health theme in its advertising this year.

J. F. Knoff, vice president in charge of sales, revealed that Airtemp has scheduled for production this year more automobile air conditioners than it produced in room air conditioners in 1952.

"And that is a very substantial figure," he added, pointing out that this is only Airtemp's third year in automobile air conditioning production.

"It's coming fast," he said. "The growth is fantastic. I predict that in 1956 we will sell as many auto air conditioners as room air conditioners.

"In time—I don't know how long it will take—every car will have air conditioning just as today every auto has a heater. It's bound to come.

"People work in air conditioned offices, live in air conditioned homes; they are bound to want air conditioned automobiles.

"Even now, in the dead of winter, customers are asking for air conditioning in Dodges and Plymouths."

Knoff, in answer to a reporter's question, said that there would be as many room air conditioners sold "legitimately" this year as were sold "illegitimately" last year.

"When the people in the business learn to merchandise room air conditioners as they should be merchandised, it will be a great business," he declared.

He estimated that sales would be 50% greater than they are if it weren't for the poor merchandising job that has been done by disreputable merchants.

He opined that fixing a standard of performance for air conditioners will help improve the business.

He forecast that residential air conditioning would be installed in 45,000 to 50,000 new homes this year—more than double the number installed last year.

Bread Freezing Studied By Government Labs

ALBANY, Calif.—Ways to make it economically more feasible for the average wholesale bakery to freeze bread for storage and distribution are under study at the western regional laboratories of the Department of Agriculture here.

Once developed, the processes could be applied to nearly all standard bread products baked by the average large bakery, it was said.

Regional Meetings Will Launch Amana Room Unit Drive

AMANA, Iowa—To launch its room air conditioner merchandising program, Amana Refrigeration, Inc. will hold a series of three regional conferences for distributor personnel at nearby Cedar Rapids, at Dallas, and at Atlanta.

The Cedar Rapids meeting will be held at the Roosevelt hotel Feb. 7 and 8; the Dallas meeting will be held Feb. 14 and 15 at the headquarters of the Porter Burgess Co., and the Atlanta meeting Feb. 18 and 19 at the Dinkler-Plaza hotel. About 75 distributor executives, sales and service managers are expected to attend each meeting.

"New selling and promotion plans, keyed to Amana's plans to double production of room air conditioners this year compared to 1954, will be considered at the conferences," it was reported by Walter A. Wendler, assistant general manager.

Led by Wendler and Edward W. Lyon, room air conditioner sales manager, the same team will conduct the conferences in each city.

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Turn to "What's New" Page for useful information on new products.

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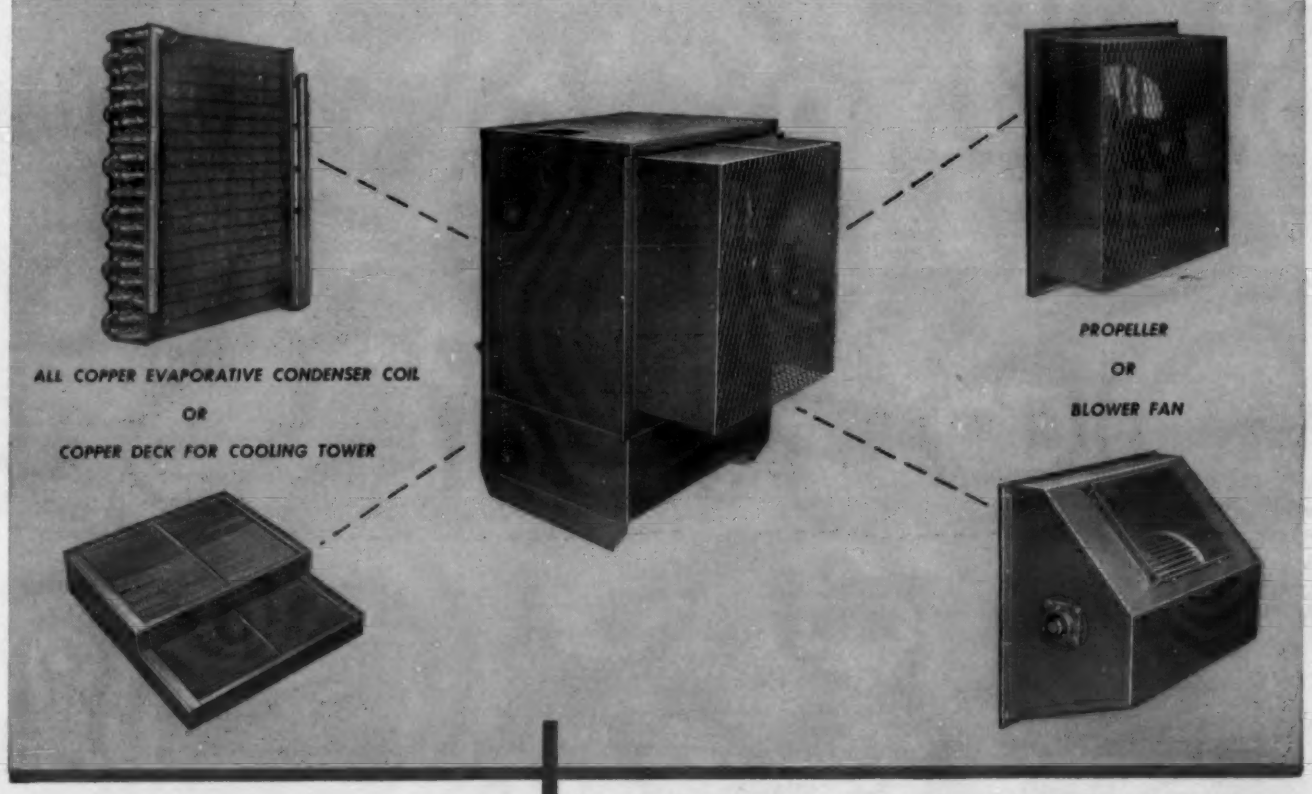

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Inner-Fin Evaporative Condenser Coil (All Copper) or Copper Deck Cooling Tower with Propeller Fan or Blower Fan.

You'll find FLEXIBILITY in these Bush Water Savers, never before available. And Bush FLEXIBILITY enables you to maintain a *complete* stock, without being burdened with excessive inventory. Bush standardization makes this possible.

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